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J. F. KELLY, Editor

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FEBRUARY 20, 1930

"METHODS OF DETERMINING BEARING PRESSURES ON ROLLING MILLS"
By ANTI FRICTION BEARING MFGS., Membership, A. I. & S. E E., Mill Builders, Roll Designers, Steel Plants of United States.

Meeting will be held Blue Room, Wm. Penn Hotel. Technical Session starts at 2 P. M. Anti-Friction Bearing Mfgs. will offer practical demonstrations of just how pressures are obtained.

CHICAGO DISTRICT SECTION

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FEBRUARY 19, 1930

"THE ECONOMICS OF COMBUSTION"
By J. B. CRANE, High Pressure Steam Specialist, Combustion Engineering Corp., New York, N. Y.
Meetings held at Electric Power Club, 30 N. Dearborn St., Chicago, Ill.

BIRMINGHAM DISTRICT

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"GEARLESS SPEED REDUCERS"
By H. M. EDMUNDS, Crocker Wheeler Electric Mfg. Co.

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"SOME INTERESTING CONSIDERATIONS IN THE DESIGN OF CONTROL EQUIPMENT"
By B. W. JONES, Westinghouse Elec. & Mfg. Co.

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WEDNESDAY, JANUARY 29, 1930

"FURNACES AND FUELS IN THE HEAT TREATMENT OF STEEL"
By W. O. RENKIN, Combustion Engineering Corporation, New York, N. Y.
This meeting will be held at the International Heating and Ventilating Exposition Commercial Museum, Philadelphia, Pa.

SATURDAY, MARCH 1, 1930

"MAGNETIC CLUTCHES IN INDUSTRY"
By H. E. HODGSON, Cutler Hammer Corporation, Milwaukee, Wis.

CLEVELAND DISTRICT SECTION

A. L. RIECHERT, Chairman — J. E. WOOD, Secretary

FEBRUARY 28, 1930

"DEVELOPMENTS IN ELECTRICAL RESEARCH"
By L. A. HAWKINS, General Electric Co.

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EDITORIAL

A. I. & S. E. E. CONVENTION and IRON AND STEEL EXPOSITION

The Iron and Steel Exposition is an institution that is fostered, sponsored, owned and controlled by the only engineering organization in the United States whose activities are exclusively devoted to the problems of the Iron and Steel Industry.

The Iron and Steel Exposition is just ONE of the activities of the ASSOCIATION OF IRON AND STEEL ELECTRICAL ENGINEERS. It is, however, one of its valuable functions, and it assists in rounding out the operating cycle of this Society.

During the year this Society conducts technical sessions in all of the leading Steel centers of the United States; discussing the operating and maintenance problems that confronts our vast Industry. All this data is then compiled, edited by the Executives of the Industry and distributed throughout the Steel World through their official medium, the IRON AND STEEL ENGINEER. This periodical, a monthly paper, acts as a clearing house for the problems of this Industry.

Another important function of the Association are the Inspection Trips. Inspection Trips are made to the various Iron and Steel Plants to inspect and examine the most modern and up-to-date equipment and methods in service.

Once a year the Manufacturers who service the Iron and Steel Industry are presented an opportunity to display or exhibit the new developments in their product and equipment to the buyers and operators who are the men who will in the final analysis be responsible for the installation, operation and maintenance of millions of dollars worth of equipment purchased by our Industry, annually.

The attendance at the Iron and Steel Exposition is confined principally to the Iron and Steel Industry and represents a purchasing power which means millions of dollars each year. The attendance is almost hand-picked, it represents executive and engineering talent of the Steel Making Art. The results that are to be obtained in the Iron and Steel Exposition are evidenced by the fact that the largest manufacturers of equipmnt in the world are with us each year.

It will be readily seen and appreciated that the Iron and Steel Exposition has its place; that it has a true function and co-ordinates with the balance of the activities of an Engineering Society. Manufacturers should keep in mind that the contacts made at the Iron and Steel Exposition may be continually renewed through the many various activities of the A. I. & S. E. E. during the year. For fifty-two weeks of each year you may participate in: Technical Sessions and Discussions, Inspection Trips; Using the National Offices of the A. I. & S. E. E. for information, help and data concerning the Iron and Steel Industry.

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A. I. & S. E. E.
Steel Mill Auxiliary Control Specification Guide Forms

Great strides have been made in the standardization of steel mill auxiliary motors, and today motor manufacturers have available a few frames, all of uniform design, and each frame with a fixed horsepower and speed, to take care of the entire field.

Manually operated controller applications are likewise taken care of by a few standard sizes of controllers.

In the case of DC Magnetic Controllers however, there is no such a thing as a standard rating, nor a standard line of equipment. That is, one manufacturer may have a standard for a certain application, but the equipment involved is usually considerably different from another manufacturer's standard for the same job. As a result, there are a multiplicity of standards, any of which may meet the conditions of the application.

Controllers are designed to take care of the functions not incorporated in the motor design, in order to enable the latter to operate under the specified conditions of the load.

It has been said that with the proper application of control, motor troubles and mill delays are few. Control is said to be the heart and brain of any electrification, and if the brain does not, or cannot function properly, how then may we expect satisfactory results out of the very best motors? We may even go further, and say that with proper control most any motor will give better performance with lower maintenance.

Of all the Industrial applications of electric controllers, none involve more severe service than steel mill auxiliary controllers. Motors are started and stopped frequently, usually under heavy loads, and in most cases must respond to quick acceleration.

In making up specifications for auxiliary steel mill drives, it is relatively easy to cover the motor characteristics required so as to enable any motor manufacturer to intelligently quote on a motor suited for the intended application. It is a different situation however, when requisitions are being prepared for the DC magnetic control apparatus. There are so many details involved that very often incomplete information, or specifications are issued, which not only necessitates considerable correspondence between the Control Manufacturers and the Purchaser, but in a great many cases apparatus is furnished that does not adequately meet the requirements, nor is the apparatus what the Purchaser intended it should be when planning the installation.

In preparing requisitions for the Purchasing Department for DC Magnetic Control Apparatus it is necessary to state whether the Control is for reversing or non-reversing, plugging, or dynamic braking service. Then again it is necessary to state the required number of accelerating points, which depend on the application, and likewise to determine the types and number of protective features, such as overload and under-voltage protection. Also in applications involving shunt or compound wound motors, it is necessary to decide whether shunt field failure and shunt field protective relays should be used. These possible variations are great, and unless detailed information is given, a wide selection of equipment may be furnished, which may, or may not properly meet the desired operating conditions.

For this reason some of our larger steel mill plants have control guide forms available (but this is by no means universal even in the larger plants), which they use in specifying new control equipment. In the majority of cases however, Operating Men have rather limited ready reference guides to follow in writing control specifications, with the result that many a motor is operating with control that is unsuited to the application, or the drive is equipped with inadequate means for proper protection.

For the convenience of the Purchasing Agents, Steel Mill Engineers, and their Assistants, a set of guide forms have been compiled to enable them to properly prepare requisitions for DC Magnetic Control Apparatus.

Form I is a very general form applicable to most any type of direct current control, while the other forms, namely Forms II, III, IV and V are simpler, and are easier to follow when preparing control specifications to meet the required conditions.

In addition to the Guide Forms, Supplementary Forms are included which are not intended to represent in detail all of the apparatus that is required on a given control, but more as a reminder to enable Buyers to include in the control specifications those items that otherwise might be overlooked, or omitted.

FORM I
GENERAL GUIDE FORM FOR SPECIFYING ANY TYPE OF DC MAGNETIC CONTROLLERS

No. Req'd.

—— —— HP —— Volts, DC Full Magnetic {Reversing / Non-Reversing} {Plugging / Dynamic Braking} Heavy Duty Controller, to provide —— points acceleration. For use with —— HP, —— Volts {shunt / series / compound} wound ——— R.P.M. {constant / adjustable / variable} speed. Mfg's. name .....
frame ..... motor for ..... application. (Specify duty (1)).
.....
.....

Full Magnetic Controller is to be {floor / wall} mounted, complete with {Grid / Edgewound} Resistor Units and is to be enclosed in a heavy sheet steel cabinet with {front door / doors both front and rear}

With the above are to be included:
No. Req'd.
—— Push Button Stations (specify type and characteristics),
or
1—Master Switch to give —— points forward, and —— points reverse, and is to have handle arranged for {vertical / radial} operation.
1—Shunt Field Rheostat to be {separately mounted / mounted on control panel}, and is to have at least —— points. (2)
Other accessories, such as limit switches, etc.
.....
.....

NOTES—(1) Specify the functions which the controller is to accomplish, such as load conditions, starting, stopping, speed control, and in addition, the frequency also length of time of operation.
(2) When field rheostat is required, obtain from the motor manufacturer hot resistance of the shunt field winding, and the field amperes of at least the first and last steps.

SUPPLEMENTARY FORM I A
(To be used in connection with Form I)

THE —— HP DC FULL MAGNETIC CONTROLLER IS TO INCLUDE THE FOLLOWING:

No. Req'd.	Capacity		
——	———	Ampere Main Line (Directional) Contactors	(1)
1	———	Ampere Circuit Breaker-Negative line-Contactor	
——	———	Ampere Accelerating Contactors, with necessary relays	
——	———	Ampere Plugging Contactors	
——	———	Ampere Dynamic Braking Contactors	
——	———	Ampere Armature Shunt Contactors	
——		Overload Relays {inverse time / instantaneous} with {automatic / hand} reset	
——		Plugging Relays	
1		Low Voltage Protective Relay	
——		Shunt Field Accelerating—Vibrating—Relays	(2)
——		Shunt Field Protective Relays	(3)
1	———	Ampere Main Line Knife Switch (with lockout device)	
1	———	Ampere Control Circuit Knife Switch (fused)	
1		Field Discharge Resistor, complete with clips on Knife Switch	(4)
1		Terminal Board on rear panel	
1		Set of {Grid / Edgewound} Resistor Units to be mounted {separate / on rear of panel / on common framework with control} and is to be NEMA Class ——. (See Resistor Application Table "B," page 4).	

Additional Apparatus as follows:
.....

NOTES: (1) If ampere ratings are specified, state whether they are to be mill, crane, or continuous duty ratings.
(2) The purpose of the Field Accelerating Relay is to prevent a high armature current when shunt, or a compound wound motor is being accelerated from full field to weak field speed under heavy load conditions, or under other conditions which introduce a heavy flywheel effect.
(3) Shunt Field Protective Relay is used to protect shunt, or compound wound motors from destructive commutation and over-speeding under light load conditions, in case of accidental opening of the shunt field circuit.
(4) Field Discharge Resistors are ordinarily added when controller is for use with shunt, or compound wound motors.

ADDITIONAL INFORMATION

Protective Devices:

Safety devices of any character, because of the increased complications to the equipment, and the periodical care and attention required, should be included in control schemes only where the harm that may result from their omission is greater than the harm that would result from their failure to operate.

Accelerating Steps:

With the old designs of motors and manual controllers, it was necessary to use a large number of accelerating steps to prevent excessive sparking or flashing. The introduction of the Magnetic Contactor has eliminated the personal element, and prevents careless manipulation. It has provided a method of switching electric currents of considerable energy without rapid destruction of the contacts. Facts have shown that only a small number of starting steps are required in accelerating a modern DC Shunt Motor under ordinary conditions. Where compound, or series motor is used, the starting torque will build up more rapidly, particularly in series motor, so that this may prove a limiting condition during acceleration, and thus may require a larger number of starting steps.

RESISTOR SERVICE CLASSIFICATION TABLE "A"

Table "A," showing the service for which each class of Resistors is designed, together with approximate starting torque, is given for general guidance only, and is believed to represent the average conditions in the Steel Mill Industry. This table includes plugging resistors for steel mill service and resistors for dynamic braking in the off position, and also for dynamic braking while lowering for use on certain types of hoists.

LIGHT STARTING DUTY RESISTORS are designed to be in circuit 15 seconds, starting once every four minutes.

HEAVY STARTING DUTY RESISTORS are designed to be in circuit 30 seconds, starting once every four minutes.

LIGHT INTERMITTENT DUTY RESISTORS are designed to be in circuit one minute out of every four-minute period.

HEAVY INTERMITTENT DUTY RESISTORS are designed to be in circuit two minutes out of every four-minute period.

SPEED REGULATION-CONTINUOUS DUTY RESISTORS are designed to be in circuit continuously. All standard REGULATING DUTY RESISTORS are designed for 50% speed reduction.

N. E. M. A. SERVICE CLASSIFICATION TABLE
TABLE "A"

Per Cent Full Load Current First Point	Starting Torque in % of Full Load			N. E. M. A. Class Numbers				
				Starting Duty		Speed Reg'n. Interm"t Duty		
	Series Motors	Compound Motors	Shunt Motors	Light 15 sec. on out of 4 minutes	Heavy 30 sec. on out of 4 minutes	Light Int. 1 minute on out of 4 minutes	Heavy Int. 2 minutes on out of 4 minutes	Speed Regul'n Continuous Duty
25	8	12	25	11	31	51	71	91
50	30	40	50	12	32	52 (a)	72 (a)	92 (b)
70	50	60	70	13	33	53	73	93 (b)
100	100	100	100	14	34	54 (c)	74 (c)	94
150	170	160	150	15	35	55	75	95
200	250	230	200	16	36	56	76	96

(a) The letter "D" added to 52 or 72 classes indicates additional capacity for dynamic braking while lowering.
(b) The letter "V" added to 92 or 93 classes indicates resistor for variable torque applications.
(c) The letter "P" added to 54 or 74 classes indicates additional capacity for plugging service.

RESISTOR APPLICATIONS

A list of representative applications is given in Table "B," together with the class of resistor used on the majority of installations. These class numbers should not be considered absolute, as they represent average conditions only, and should be checked with the Service Classification to insure that all requirements are met. There are peculiarities surrounding each installation which effect the class of resistors required. If resistors are required for a longer time period than that shown in the Application Table, the next higher class number to the right should be used, or if higher starting torque is required, use the next higher class to the bottom.

RESISTOR APPLICATION TABLE
—For General Guidance—

TABLE "B" NEMA Service Classification for DC Magnetic Controller for AVERAGE CONDITIONS.

Application		
Accumulators	35	
Bar Puller (Pipe Mills)	54	
Blowers:		
Constant Pressure	35 or 96	
Centrifugal	34 or 93 V	
Bucket Hoist:		
Hoist	72 D	
Shell Line	72 D	
Trolley	74	
Bridge	74	
Bull Dozer	55	
By-Product Coke Plants:		
Air Valve Reversing Mach.	14	
Coke Leveler Rams	74 P	
Coke Pusher Bars	74 P	
Door Machines	13	
Gas Cock Reversing Mach.	14	
Tar Pumps	36	
Car Dumpers	52	
Barney or Mule Haul	52	
Cradle Hoist	74 or 72 D	
Hoist	35	
Casting Machine—Pig	36	
Charging Machines:		
Bridge	74	
Peel Revolving	74	
Trolley	73	
Coiling Machines	35	
Compressors:		
Constant Speed	35	
Varying Speed	95	
Conveyors	54	
Converters—Metal	74	
Cooling Beds	54 P	
Cranes:		
Bridge	54 P	
Hoist	72 or 72 D	
Stripper	74 P	
Trolley	54 P	
Crushers	35	
Furnaces—Annealing	54 P	
Furnace Doors	54 P	
Gas Valves	54 P	
Gas Washers	13	
Machine Tools: (Non-Reversing)	34	
Bending Rolls (Reversing)	54	
Boring Mills	35	
Bull Dozers	35	
Drills	35	
Gear Cutters	35	
Grinders	35	
Hobbing Machines	35	
Lathes	35	
Milling Machines	35	(d)
Planers	35	
Presses	35	
Punches	35	
Saws	35	
Shapers	35	
Plate Planers	56	
Metal Mixers:		
Hot Metal Mixers	54 P	
Ingot Buggy	54 P	
Kick Off	44 P	
Levelers	74 P or 54 P	
Manipulator Fingers	74 P or 54 P	
Manipulator Side Guard	74 P or 54 P	
Metal Working:		
Bull Dozers	36	
Accumulators	36	
Draw Bench	75	
Ore Bridges:		
Rack	74	
Rail Clamp	92	
Trolley	74	
Hoist	74 or 72 D(e)	
Ore Unloaders:		
Apron Hoist	74 or 72 D	
Bridge	74	(f)
Elevator	74	
Hoist	73 or 72 D	
Trolley	74	(f)
Pickling Machine	54	
Pilers—Slab	54	
Pipe Cutting & Threading Machines.	35	(g)
Pipe Expanding & Flanging Machines	35 or 95	(h)
Pumps:		
Centrifugal	34 or 92 V	
Plunger	35 or 95	
Racks	54	
Reelers	35	
Saws:		
Cold	55	
Hot	55	
Screw Downs	74 P	
Shears	55	
Shovels:		
Hoist	73	
Swing	73	
Thrust	93	
Shuffle Bars	54 P	
Sizing Rolls	54 P	
Skull Cracker Cranes	54	
Slab Buggy	54 P	
Soaking Pit Covers	54 P	
Straighteners	54 P	
Straightening Rolls	54 P	
Tables:		
Lift	56	
Roll	54 P	
Transfer	54 P	
Tilting Furnaces	54 P	
Wire Stranding Machine	35	

Notes—(d) Applies to Non-Reversing. For Reversing use Class 75.
(e) Use 72-D for dynamic braking while lowering, or where the crane does not have load brake.
(f) For plugging service specify 74-P.
(g) If for plugging service specify 54.
(h) Use lowest class for starting and highest for speed control.

FORM II

GENERAL GUIDE FORM FOR SPECIFYING NON-REVERSING DC MAGNETIC CONTROLLERS

No. Req'd

—— —— HP —— Volts, DC Full Magnetic Non-Reversing (Dynamic Braking) Heavy Duty Controller, to provide —— points acceleration.

For use with —— HP, —— Volts { shunt / series / compound } wound —— R.P.M. { constant / adjustable speed. / variable } Mfg's name ..... Frame .....motor for ..... application. (Specify duty (1).

.....

Full Magnetic Controller is to be { floor / wall } mounted, complete with { Grid / Edgewound } Resistor Units (and is to be enclosed in a heavy sheet steel cabinet with { front door / doors both front and rear.

With the above are to be included:

No. Req'd.

—— Push Button Stations (specify type and characteristics), or,

1—Master Switch to give —— points forward, and —— points reverse, and is to have handle arranged for { radial / vertical } operation.

1—Shunt Field Rheostat to be { mounted on control panel / separately mounted } and is to have at least —— points. (2)

Other accessories, such as limit switches, etc.

.....

NOTES—(1) Specify the functions which the controller is to accomplish, such as load conditions, starting, stopping, speed control, and in addition, the frequency, also length of time of operation.
(2) When Field Rheostat is required, obtain from the motor manufacturer hot resistance of the shunt field winding, and the field amperes of at least the first and last steps.

SUPPLEMENTARY FORM II A

(To be used in connection with FORM II

THE —— HP DC FULL MAGNETIC NON-REVERSING CONTROLLER IS TO INCLUDE THE FOLLOWING:

No. Req'd.	Capacity		
——	——	Ampere Main Line Contactors	(1)
——	——	Ampere Accelerating Contactors, with necessary relays	
——	——	Ampere Dynamic Braking Contactors	
——	——	Ampere Contactors, such as for armature shunt, etc.	
——	——	Overload Relays { inverse time / instantaneous } with { automatic / hand } reset	
1		Low Voltage Protective Relay	
——		Shunt Field Accelerating—Vibrating—Relays	(2)
——		Shunt Field Protective Relays	(3)
1	——	Ampere Line Knife Switch (with lockout device)	
1	——	Ampere Control Circuit Knife Switch (fused)	
1		Field Discharge Resistor, complete with clips on Knife Switch	(4)
1		Terminal Board on rear panel	
1		Set of { Grid / Edgewound } Resistor Units to be mounted { separate / on rear of panel / on common frame work with control } and is to be NEMA Class ——. (See Resistor Application Table "B" page 4).	

Additional Apparatus as follows:

.....

NOTES—(1) If ampere ratings are specified, state whether they are to be mill, crane, or continuous duty ratings.
(2) The purpose of the Field Accelerating Relay is to prevent a high armature current when shunt, or compound wound motor is being accelerated from full field to weak field speed under heavy load conditions, or under other conditions which introduce a heavy flywheel effect.
(3) Shunt Field Protective Relay is used to protect shunt, or compound wound motors from destructive commutation and overspeeding under light load conditions, in case of accidental opening of the shunt field circuits.
(4) Field Discharge Resistors are ordinarily added when controller is for use with shunt, or compound wound motors.

FORM III
GENERAL GUIDE FORM FOR SPECIFYING REVERSING OR REVERSING-PLUGGING DC MAGNETIC CONTROLLERS

No. Req'd.

—— —— HP —— Volts, DC Full Magnetic Reversing (Plugging) Heavy Duty Controller, to provide —— points acceleration. For use with ——HP —— Volts {shunt / series / compound} wound —— R.P.M. {constant / adjustable / variable} speed. Mfg's name ———— frame —— motor for———— application. (Specify duty (1).

. . . . . .

Full Magnetic Controller is to be floor mounted, complete with {Grid / Edgewound} Resistor Units (and is to be enclosed in a heavy sheet steel cabinet with both front and rear doors).

With the above are to be included:

No. Req'd.

—— Push Button Stations (specify type and characteristics), or

1—Master Switch to give —— points forward and —— points reverse, and is to have handle arranged for {vertical / radial} operation.

1—Shunt Field Rheostat to be {separately mounted / mounted on control panel} and is to have at least —— points. (2)

Other accessories, such as limit switches, etc.

NOTES:—(1) Specify the functions which the controller is to accomplish, such as load conditions, starting, stopping, speed control, and in addition, the frequency, also length of time of operation.
(2) When field rheostat is required, obtain from motor manufacturer hot resistance of the shunt field winding, and the field amperes of at least the first and last seps.

SUPPLEMENTARY FORM III A
(To be used in connection with FORM III

THE —— HP DC FULL MAGNETIC REVERSING (PLUGGING) CONTROLLER IS TO INCLUDE THE FOLLOWING:

No. Req'd.	Capacity		
4	———	Ampere Main Line (Directional) Contactors	(1)
1	———	Ampere Circuit Breaker — Negative Line-Contactor	
——	———	Ampere Accelerating Contactors, with necessary relays	
——	———	Ampere Plugging Contactors	
——	———	Ampere Armature Shunt Contactors	
——		Overload Relays {inverse time / instantaneous} with {automatic / hand} reset	
——		Plugging Relays	
1-		Low Voltage Protective Relay	
——		Shunt Field Accelerating—Vibrating—Relays	(2)
——		Shunt Field Protective Relays	(3)
1	———	Ampere Main Line Knife Switch (with lockout device)	
1	———	Ampere Control Circuit Knife Switch (fused)	
1		Field Discharge Resistor, complete with clips on Knife Switch	(4)
1		Terminal Board on rear of the panel.	
1		Set of {Grid / Edgewound} Resistor Units to be mounted {Separate / on common framework with control} and is to be NEMA Class No. ——. (See Resistor Application Table "B," page 4). Resistance to be so arranged as to limit plugging current not to exceed——% full load.	

Additional Apparatus as follows:

. . . . . .

NOTES—(1) If ampere ratings are specified, state whether they a.e to be mill, crane or continuous duty ratings.
(2) The purpose of the Field Accelerating Relay is to prevent a high armature current when shunt, or compound wound motor is being accelerated from full field to weak field speed under heavy load conditions, or under other conditions which introduce a heavy flywheel effect.
(3) Shunt Field Protective Relay is used to protect shunt, or compound wound motors from destructive commutation and overspeeding under light load conditions, in case of accidental opening of the shunt field circuit.
(4) Field Discharge Resistors are ordinarily added when controller is for use with shunt, or compound wound motors.

FORM IV
GENERAL GUIDE FORM FOR SPECIFYING REVERSING, DYNAMIC BRAKING DC MAGNETIC CONTROLLERS

No. Req'd.

—— ——— HP —— Volts, DC Full Magnetic Reversing Dynamic Braking

Heavy Duty Controller {to provide — points acceleration / to give — points in hoisting and — points in lowering.}

For use with —— HP —— Volts {shunt / series / compound} wound ——— R.P.M. {constant / adjustable / variable} speed.

Mfg's. name ——————— frame ——— motor for————application. (Specify duty (1).

.....

Full Magnetic Controller is to be floor-mounted, complete with {Grid / Edgewound} Resistor Units (and is to be enclosed in a heavy sheet steel cabinet with both front and rear doors).

With the above are to be included:

No. req'd.

—— Push Button Stations(specify type and characteristics) or

1—Master Switch to give — points forward and — point reverse, and is to have handle arranged for {vertical / radial} operation.

1—Shunt Field Rheostat to be {separately mounted / mounted on control panel} and is to have at least — points. (2)

Other accessories, such as limit switches, etc.

.....

NOTES—(1) Specify the functions which the controller is to accomplish, such as load conditions, starting, stopping, speed control, and in addition, the frequency, also length of time of operation.
(2) When field rheostat is required, obtain from the motor manufacturer hot resistance of the shunt field winding, and the field amperes of at least the first and last steps.

SUPPLEMENTARY FORM IV A
(To be used in connection with FORM IV)

THE ——— HP DC FULL MAGNETIC REVERSING DYNAMIC BRAKING CONTROLLER IS TO INCLUDE THE FOLLOWING:

No. Req'd.	Capacity		
——	———	Ampere Main line (Directional) Contactors	(1)
1	———	Ampere Circuit Breaker—Negative Line-Contactor	
——	———	Ampere Accelerating Contactors, with necessary relays	
——	———	Ampere Dynamic Braking Contactors	
——	———	Ampere Shunted Armature Lowering Contactors	
——		Overload Relays {inverse time / instantaneous} with {automatic / hand} reset	
1		Low Voltage Protective Relay	
——		Shunt Field Accelerating—Vibrating—Relays	(2)
——		Shunt Field Protective Relays	(3)
1	———	Ampere Main Line Knife Switch (with lockout device)	
1	———	Ampere Control Circuit Knife Switch (fused)	
1		Field Discharge Resistor, complete with clips on Knife Switch	(4)
1		Terminal Board on rear of panel	
1		Set of {Grid / Edgewound} Resistor Units to be mounted {separate / on common framework with control} and is to be NEMA Class No. ——. (See Resistor Application Table "B," page 1).	

Additional Apparatus as follows:

.....

.....

.....

NOTES—(1) If ampere ratings are specified, state whether they are to be mill, crane, or continuous duty ratings.
(2) The purpose of the Field Accelerating Relay is to prevent a high armature current when shunt, or compound wound motor is being accelerated from full field to weak field speed, under heavy load conditions, or under other conditions which introduce a heavy flywheel effect.
(3) Shunt Field Protective Relay is used to protect shunt or compound wound motors from destructive commutation and over-speeding under light load conditions, in case of accidental opening of the shunt field circuit.
(4) Field Discharge Resistors are ordinarily added when controller is for use with shunt, or compound wound motors.

ADDITIONAL DATA FOR CRANE HOIST CONTROL

The first point should provide ——% full load torque at standstill and the remaining points are to accelerate the motor smoothly to full speed.

With full load on hook, the first point should give a lowering speed not exceeding ——% full load torque speed of motor. The remaining points increasing the lowering speed so that a speed corresponding to ——% full torque speed of motor is obtained on the last point.

With light hook lowering, the control shall provide a final lowering speed of ——% full load hoisting speed of the motor, and shall limit the lowering speed, with any load up to ——% rated load on hook to ——% full load hoisting speed.

In case of power failure, control must be so arranged that a strong dynamic braking circuit is established which will lower full load at a safe speed. With friction brakes released, the dynamic braking shall limit the lowering speed, with full load on hook, to approximately ——% full load hoisting speed.

FORM V
GENERAL GUIDE FORM FOR SPECIFYING DC CRANE PROTECTIVE—SWITCHBOARD—PANELS
With Common Return Circuit

(A) Circuit —— Volts, DC Full Magnetic Crane Protective—Switchboard—Panel for (B) Direct Current Motors, totalling (C) Horsepower and having —— HP largest motor. (Specify individual HP ratings). Crane Protective—Switchboard—Panel will be { floor / wall } mounted (and is to be enclosed in a heavy sheet steel cabinet with removable front cover).

(A) Number of circuits which is one more than number of motors.
(B) Number of motors.
(C) Total Horsepower rating of all motors.

With Double Overload Protection

(B) Motor —— Volts, DC Full Magnetic Double Overload Crane Protective—Switchboard—Panel, totalling (C) Horsepower having —— HP, largest motor. (Specify individual Horsepower ratings). Crane Protective Panel will be { floor / wall } mounted (and is to be enclosed in a heavy sheet steel cabinet with removable front cover).

SUPPLEMENTARY FORM V A
(To be used in connection with FORM V)

THE CRANE PROTECTIVE—SWITCHBOARD—PANEL IS TO INCLUDE THE FOLLOWING:

No. Req'd.	Capacity		
——	——	Ampere Main Line Magnetic Contactors	(1)
1	——	Ampere Main Line Knife Switch, with provision for locking in open position	
——		Overload Relays	(5)
1		Interlocking Contactor with Resistor	
1		Push Button Station	
1		Set Control Fuses	
——		Pilot Lamp Receptacles	

NOTES—(1) If ampere ratings are specified, state whether they are to be mill, crane, or continuous duty ratings.

(5) For common return circuit one overload relay, or a coil of a relay, is required in positive line of each motor, and one more common relay, or a coil of a relay, in the negative line to protect the panel and lines against too high a combined overload. Where double overload protection is desired, two overload relays are required for each motor, one for the positive and one for the negative side of the line.

A NEW BOOK

The third edition (1929) "Methods of the Chemists of the United States Steel Corporation for the Sampling and Analysis of Coal, Coke and By-Products," has just been completed. Part I, covering 143 pages, bears the title "Sampling and Analysis of Coal and Coke," and is itself divided into some fifteen sections. Part II, 100 pages, title, "Sampling and Analysis of Coke Plant By-Product Materials." Part III, covering 69 pages, describes methods for the Sampling and Analysis of Coal Tar and Tar Refinery Products. Mr. C. B. Francis, Bureau of Technical Instruction, Carnegie Steel Company, Pittsburgh, Pa., had quite a prominent part in the compilation of this book and is in charge of its distribution.

Developments in the Field of Combustion

By H. V. FLAGG*

During the critical business period through which the country has recently passed, leaders in all paths of activity have driven home repeatedly the point that conditions were inherently healthy and that good business should continue provided every effort is made to make industry as efficient as possible. Steel makers, especially are realizing that their prosperity depends very largely on how well they succeed in reducing costs, in eliminating wastes, in increasing yields, and in improving quality. Every steel plant executive expends a large amount of his time and energy in planning and strengthening his offensives against these various elusive losses.

The supplies of fuels in use and the efficiency of their utilization have a vital influence on steel making costs; and the growing realization of the importance of this factor throughout steel plant operating organizations marks one of the outstanding advances toward better combustion practice. An open hearth plant may have the most modern and complete equipment, may be supplied with the finest fuel available and the best quality of materials, and still, be far from a profitable plant, on account of poor combustion practice. The fuel practice affects not only the fuel cost, but has a decided influence on furnace production and furnace yield. The latter two factors have a far greater effect on the cost of steel than the fuel consumption but usually all three are tied up together so that high fuel consumption goes with slow furnace time and low yield.

The same considerations hold for the combustion practice in the soaking pits except that any loss in yield they must bear the open hearth cost in addition to that of the soaking pit operation. Furthermore, the yield and quality of steel after the blooming mill depend on the degree of uniformity in soaking pit heating.

Practically every operation on through to the finished product involves heating and each reheating process introduces new possibilities for losses in yield and quality. When it is realized that every spoiled piece of steel must bear the costs of all the preceding operations, the influence of combustion practice on the final cost of the product assumes a new importance.

For years every progressive steel maker has been making some effort to get this important item under control. The first step made was to secure dependable and comprehensive data on fuel consumptions for the various operations which soon brought out the weak and inefficient spots. Then followed surveys of these weak spots with plans for improvement. In some cases the remedy lay in simply correcting poor practice, while in others obsolete equipment had to be replaced with modern, up-to-date equipment. Later came the realization that the survey and the steps taken for remedy were not sufficient and that it was necessary to maintain a continuous follow-up on the operation if the proper returns on the investment of time, money and effort were to be secured. So the combustion department has grown from a small group of engineers, practical or otherwise, who flitted from here to there about the plant spending a little time on one problem and then leaving it half done to attack something else more pressing, to a well planned, comprehensive organization from which carefully chosen men are assigned to definite tasks and operations and are allowed to spend enough time in their spheres that they are able to become as practical as the operators themselves. Under such an organization the fuel study worker gets to know the men among whom he is working well enough that he can lead them to more efficient ways of working and to a fuller understanding of the principles involved. From the understanding gained from such intensive study, plans for improvement are bound to be sounder and much less time and money need be spent on wild goose chases.

This development in combustion study and practice has resulted in a more exacting demand for means of control of the different factors entering fuel applications. Fuels must be metered much more closely, combustion air must be controlled which requires more meters with sensitive draft and pressure gauges, pyrometers and thermometers are needed, and some means of controlling the relative amounts of fuel and air must be provided. Every instrument company maintains a development staff which is kept busy trying to work out new problems which are put to them. The degree of success which they have attained is reflected in the amount of business they have had. Practically all the companies in this line have had to enlarge their plants and expand their organizations in order to meet the demands made upon them and still are so far behind that deliveries are painfully slow.

One of the outstanding developments in the control field has come during the year just passed which was the perfection of the "inching" control to practical operating basis. The limitations of the two position control made it practically useless for applications where the range of operations varied outside narrow limits. The new control makes it possible to operate a furnace over the entire range of the fuel and air supply while the temperature curve is held practically to a straight line.

Temperature recording and indicating equipment, draft and pressure gauges, and meters have been improved, simplified, and made more rugged and dependable.

Developments in the high temperature alloy field have brought stronger metals so that lighter sections are practicable and the cost is not so prohibitive. Progress in the art had been such that it is now possible to specify alloys for special conditions which stand up exceedingly well.

Furnace companies and engineers have had their share in the progress of the times. Improved systems of air and fuel control, better uses of insulation materials and refractories, new devices for recovery

*Combustion Engineer, American Rolling Mill Co., Middletown, Ohio.

of the heat in waste gases, and improvements in furnace design have all contributed to give us furnaces which heat more material with greater uniformity, with decreased metallurgical loss, and with lower fuel consumption.

The writer recalls being criticized rather severely within the last five years for mentioning a fuel figure of five million B.T.U. for melting a ton of open hearth steel. That this was no idle dream has been borne out in more than one open hearth shop during the past year. One middle western furnace by means of close combustion control has been able to make steel with average repair cost, good hourly tonnage, and exceptionally good yield on a fuel consumption approaching four million B.T.U. per ton. One soaking pit shop has reported a fuel consumption of less than 900,000 B.T.U. per gross ton on a conventional pit installation fired with producer gas from old style producers. This exceptional fuel figure was secured through careful operation and supervision alone. Fuel consumptions below two million B.T.U. per ton of sheets on normalizing operations are not uncommon. These examples of good fuel practice indicate that real progress is being made. The fact that such instances are the exception rather than the rule merely serves to indicate the vast amount of improvement and savings that can be made in the steel industry.

Development in the use of low heat value gases continues. Mixed coke oven and blast furnace gas is making possible very attractive operating records in the open hearth. Coke ovens heated entirely with blast furnace gas have proven successful and are making a product of unusual uniformity. The relatively large capital outlay required for gas cleansing equipment and enlargement of plant distributing system for low heat value gas will retard the development of the mixed gas application.

Improvements in gas producer design and construction have practically doubled the gasification rates for the amount of capital invested. The control devices applied have made possible more uniform operation so that practically constant gas quality and pressure can be maintained. Modern producer plants can deliver gas from $3.50 coal at a cost of $0.20 per million B.T.U.—a price which demands consideration for any sizeable fuel application. Raw producer gas burners using low pressure air have been developed to the point where they are practically trouble free and can be adapted for automatic temperature control.

Sweeping changes in steel making methods coupled with the advances in equipment for producing and using fuels have made the past year a very interesting one from the viewpoint of the combustion engineer and point to equally interesting developments in the year to come.

Specifications and Guide Forms

By J. J. BOOTH*

The Iron and Steel Engineer, published by the Association of Iron and Steel Electrical Engineers is the heart throb, so to speak, of the Association. In these monthly issues, the iron and steel electrical engineer looks for technical data, engineering designs and applications of electricity to the many and varied uses in the steel mills and their allied industries. The application of electricity in steel mills of today has so broadened its scope that the Iron and Steel Engineer forms a clearing house of knowledge where all engineers may exchange facts and personal experiences for the improvement of their respective organizations, and the general advancement of the art in Steel Mills.

Not only has the Iron and Steel Engineer accomplished much in the past, but it is ever on the lookout for improvements and betterments, and with this thought in view the board of directors has decided to launch into a more or less unexplored field, the field of specifications.

Specifications are written up primarily for one purpose and that is to convey specific ideas from the purchaser to manufacturer, which the purchaser wants expressed in a piece of machinery, such as motors, controllers, switchboard, etc. These specifications are many and varied, even for the same apparatus, or better, apparatus to perform the same function. Would it not be well that these specifications were in a measure standardized.

There are many orders placed with the manufacturing companies that once they have received the order they immediately begin to write to customers for details, because some one or several important items have been omitted and until they are satisfied that all details are correct, the manufacturer cannot put equipment in production. This is not only expensive, but causes many undue delays, which in many instances are serious.

If the Association can publish specifications covering a large percentage of electrical equipment required in steel mills, they will help to standardize equipment, decrease delays in manufacture, save time and money in production and in many cases it will be possible for the engineer in charge to assign to assistants the duty of working up specifications with the feeling that they will at least, cover all the important points in question.

*Elec. Supt., National Tube Co., Gary, Indiana.

Instructing the New Employee in Safety

By H. G. HENSEL*

The new employee is apt to be injured because of his unfamiliarity with the hazards of his new job unless he is properly instructed. There should be no better time to instruct him than immediately after he has been employed. I recently heard about the plan of one company where they instruct the men before they are employed, but the general practice seems to be to do this after hiring.

A foreman can do this instructing, and it should be looked upon by the foreman as his opportunity to get acquainted with the new employee. Foremen should know their men, and, as near as possible, put them on the work they are best fitted for. If it is found that a man does not fill the job he is started on, in the first instance, he should be shifted to other jobs until he is properly placed.

The new employee should be told and shown the hazards of the work and he should be warned about the Unsafe Practices which have caused accidents in the place in which he is to work. If special safety equipment is needed for the job, such as safe clothing, safety shoes, locks for electrical switches, goggles, face masks, etc., he should be told where and how to secure this material and where and how to use it should be emphasized.

The importance of going to the plant or shop first aid if an injury is sustained, no matter how slight, should be impressed upon this new employee.

On a job where there is considerable hazard, the new man should be put to work with an experienced employee who is willing to teach the new man how to do the work safely.

It has been said that "Safety is just the right way of doing a job" and that "An accident was an indication that something was wrong with the method of doing the job." If safety can be secured by doing the work in the right way, then is it not well worth while to start the new employee right and tell and show him all about the right way?

It is probably just as easy for the new man to form the habit of doing the job the right way and the safe way as it is for him to form the habit of doing it the wrong way, which many times leads to accidents and injuries.

The fact that the new employee claims to have had considerable experience at the job he has been hired for should not be any reason for a foreman to fail in giving him full instructions. This new employee's past experience may not have covered the wide field he thinks it has, and his training along safety lines may have been neglected.

The safe way is to fully instruct all new employees.

*Safety Director, Youngstown Sheet & Tube Co., Chicago, Ill.

By A. C. GERMAIN*

This subject has been debated by Safety Directors ever since the birth of Industrial Safety and we may expect this phase of our work to be argued pro and con for many years to come by those devoting their lives to Accident Prevention. It is reasonable to believe that we will never see the day when all men will agree on any one method of education, therefore, we cannot expect to realize our ambitions by having everyone adopt our methods of Safety Education, for after all, who knows but that someone serving humanity in a like capacity may have a better method of putting his message across to the New Employee.

We hear these debates, papers are presented by Safety Directors at local and national gatherings and we read editorials on this important subject. All sincere in their belief that their plan of educating the New Employee is probably a masterpiece. Why? Why are we so spontaneous in accepting our own plan of educating the New Employee in Safety as the best? Because they are showing results. We find at the end of the year that our frequency and severity rates are on the decline as compared with records of previous years and we are willing to accept our own method as the last word, if you please, in educating the New Employee.

There are, however, certain phases of this educational problem that a majority of Safety Educators will agree on. First of all is the importance of reaching the New Employee. It can be done before or after he is hired by presenting him with the fundamental and specific safety rules relative to his particular work. Whether verbal or in the form of printed rule books matters little to the New Employee, provided he is instructed by someone who is sincere, sympathetic and thoroughly in harmony with this part of the educational program. One can feel reasonably assured that the New Employee's first impressions of Safety will be lasting. Whether they are to be good or bad depends entirely on the attitude of the instructor towards Safety.

The second most important phase of this work that a majority of the Safety Directors will agree upon is the importance of retaining the confidence of the New Employee after he has started to work. This must be accomplished by his Foreman by carrying out the policies of the management and insisting on all the safety rules as outlined to the New Employee being obeyed by the older employees.

Another important part of this educational program of the New Employee is to get him active on a Safety Committee and attending departmental safety meetings as soon after his employment as possible so that he will enter into the spirit of Accident Prevention work and become an enthusiastic Safety Booster from the start.

*Safety Engineer, Minnesota Steel Co., Duluth, Minn.

A Review of the Proceedings of A.I.& S.E.E. in Connection with the Development of Anti-Friction Bearings in the Iron and Steel Industry.

The use of Anti-Friction Bearings in the Iron and Steel Industry is due largely to the Electrical Engineers of the Industry. One of the pioneers, L. J. Hess, who was then with the Youngstown Sheet and Tube Company, possessed the vision necessary to see the possibilities of this type of bearing and also the courage to apply the bearings to a number of mill type motors. The success attained in these particular installations naturally attracted the balance of the Industry to try this type of bearing with the result that in about eight years' operation Anti-Friction Bearings are accepted by practically the entire Iron and Steel Industry (so far as mill type and general purpose motors are concerned).

It does not follow however, that all of the applications made were successful. Many of them were failures, due to improper application on the part of the engineers at the plants and also due to the fact that the bearings failed to meet the expectations of the manufacturers distributing them.

In 1916 a steel plant equipped a mill type motor with what was obviously an automobile type bearing. This experience was so unsatisfactory that it required three years to overcome the plant's objection to again experiment with this type of bearing.

In 1918 another installation was made on a mill type motor, on the bridge of a 100-ton hot metal crane. This installation was highly successful. After four years operation the bearings indicated about four one-thousandths of an inch wear (.004").

In 1922 in a paper before the Association of Iron and Steel Electrical Engineers, Mr. Hess, then with the Youngstown Sheet and Tube Company, made the following statement:

"From my experience with sixty odd sets of these bearings (Anti-Friction Type) we have found the following advantages:

1—"Electrical repairs to commutators and windings are greatly reduced because fully 50% of these troubles start from oil and grease working their way onto the commutator and front V ring and with roller bearings the grease is entirely confined within the bearing shell.

2—"Commutator wear is materially reduced because there is no jumping of the armature due to loose bearings with tendency to cause flashing and consequent flat spots. Shafts are also longer lived because the only wear on them is in the keyways.

3—"The fact that the armature is held constantly in the center of the magnetic field helps to make the current distribution uniform, thereby relieving the equalizer connections of abnormal duty.

4—"Broken bands due to rubbing are unknown.

5—"Pinions are kept accurately in mesh and crowning of the teeth with its consequent strain and vibration is obviated.

6—"Expense of inspection is somewhat reduced due to better commutation and less attention required for lubrication.

7—"The cost of lubricants is reduced to an almost negligible figure as the bearings consume practically no grease.

8—"And lastly because of the reduction in repairs it follows that not only is labor and loss of time in the mills during armature changes reduced, but also the delay time charged against the electricians.

"The writer is convinced that the mill type motor with babbit bearings will be supplanted and supplanted soon by something superior, roller bearings; for it has been proven to his entire satisfaction that by careful designing they can be applied to practically any motor at a saving that will soon repay the extra initial cost. When this is fully appreciated by mill engineers, as it is now by some, roller bearings will be written in motor specifications. Then, if not before then, the manufacturers will get on the job and the development along this particular line will speed up."

In 1923 Mr. D. M. Petty, then Electrical Superintendent of the Lehigh Plant of the Bethlehem Steel Company, at Bethlehem, accepted the chairmanship of a committee known as the Special Bearings Committee of the Association of Iron and Steel Electrical Engineers. This committee presented a report before the Association at Buffalo September 25, 1923, as follows:

REPORT OF SPECIAL BEARINGS COMMITTEE

By D. M. PETTY,* Chairman

The Committee on Bearings has, during the past year, made a careful study of the problem of applying roller and ball bearings to motors. It has held one joint meeting with a committee representing the Power Club and appointed to study the same problem.

The following are some of the high spots which have come out in this discussion, classified according to:

1. User of motors.
2. Builders of motors.
3. Builders of bearings.

*Electrical Superintendent, Bethlehem Steel Company, South Bethlehem, Pa.

Users of Motors

In the users of motors there is a relatively small class who have used ball or roller bearings in motors. A vast majority of this class are very enthusiastic over the results obtained. They have had some bearing failures, but have been able to satisfactorily explain these failures and rather definitely fixed the cause. A few of these are as follows:

1. Improper mounting.
2. Improper size of bearing.
3. Grounded armatures.

In this connection, however, it should be noted that with ball bearings a smaller number of armatures are grounded in a given length of time.

4. Improper lubrication.

This item may be divided into:

(a) Improper lubricant.
(b) Lack of sufficient quantity of the proper lubricant.

There is a much larger class who believe in ball or roller bearings, but who have hesitated to put them into service, because of insufficient information and because the motor builder does not urge their use and who, when asked for a quotation, makes the price almost prohibitively high. This class of user in general is merely waiting for the first class to say more about their experiences and for the motor builders to come out with a definite recommendation for the roller or ball bearings.

There is a third relatively small class who do not believe in ball or roller bearings, primarily because they feel that the sleeve bearing, as now in general use, is satisfactory and meets the needs of their particular industry. As a whole, this class are using motors on relatively easy work or else do not know the real causes of their motor failures.

Builders of Motors

In the motor builders we have three classes:

1. Those who have used ball bearings extensively. These builders usually report good results, and where a standardized method of mounting has been worked out do not quote excessively high prices for motors equipped with ball bearings when compared with their prices for sleeve bearing motors.

2. This class of motor builders include those who believe that ball or roller bearings can be successfully applied, and are entirely willing to furnish motors equipped with these bearings, provided the motor user will pay the bill. The bill is high because no standardized method of mounting has been worked out.

3. We have the motor builder who believes that motors are good enough with the present type sleeve bearing, and who furthermore believe that if bearing improvements are necessary, such improvements can be made in the sleeve bearing. Their arguments against ball bearings include the argument of excessive cost of changing existing designs, excessive cost and difficulty of doing the accurate machine work necessary in mounting the ball or roller bearings.

Builders of Bearings

With the builders of bearings the ball bearing has been standardized internationally. This standardization includes three general weights of bearings, the light, medium and heavy. Each of these three general classifications includes many varieties. This standardization does not include the size of ball or shape of race, but the outside diameter of the outer race and the inside diameter of the inner race, in other words, the international standards makes the mounting dimensions of ball bearings entirely interchangeable from one manufacturer to another. The ball bearing industry is to be congratulated for their excellent work along this line.

Roller bearings of the large diameter, short length, solid type have been somewhat standardized along the same line. There is, however, still room for improvement in the standardization of roller bearings. There are several lines of roller bearings on the market which are interchangeable with the medium series of ball bearings.

Ball or roller bearings properly mounted are good or bad, depending upon the accuracy of the grinding. Great improvements have been made in the past five years along this line. It seems that the ball-bearing builders in general have made more progress than the roller-bearing builders. However, the latter are rapidly catching up, and even now no trouble results from this cause.

The use of ball and roller bearings is constantly increasing, consequently the manufacturing facilities have been constantly increasing, so that the cost of the finished bearing has been and should continue to gradually decrease.

Roller bearings of small diameter and great length do not line up with the ball bearings as well as the roller bearing of large diameter and short length Therefore, the standardization of this general type of roller bearing has not advanced to the same extent. Owing to the marked difference between this type of bearing and the ball bearing, it will very likely be found necessary to make a separate standardization.

As stated above, these are only the high spots of the information which has come into the hands of the committee, but will serve as a general guide to anyone who is making a study of the situation. It should be emphasized, however, that within any series of bearings there lies a wide choice of design ranging from the shallow flat race with a small number of large diameter balls to the very deep race with a large number of small diameter balls. These various designs have their particular points of advantage which should be taken into consideration by the user as well as the builder of motors with the liberal co-operation of the bearing engineer.

Minutes of the Joint Meeting of the Bearing Committee, A. I. & S. E. E. and the Power Club

1. It is desirable to standardize bearings as quickly as possible so that motor users may install roller or ball bearings in existing motors and use sizes which will line up with standards to be used by motor builders in the future.

2. It was considered desirable and practical to standardize on ball-bearing sizes that will be interchangeable with roller-bearing sizes so far as outside and inside diameter is concerned. Roller bearings in this discussions being limited to the solid roller type, it was pointed out that while a roller bearing and ball bearing of the same inside and out-

side dimensions would be interchangeable from a mounting standpoint, the roller bearing would almost invariably be capable of carrying a somewhat heavier load.

3. After a general discussion it was considered advisable to adopt the standard ball-bearing sizes of the 300 series and that the roller bearings be made to conform to these sizes so far as inside and outside dimensions are concerned.

4. That the number of sizes standardized upon for motors be limited to the smallest practical number so as to reduce the number of spare bearings necessary to stock for protection against breakdowns.

5. That no attempt be made to standardize on any particular size of bearing for a given frame size of motor of any given horsepower rating or speed; that the selection of the sizes for any line of motor be left in the hands of the designing engineers.

In line with paragraphs 3 and 4, the Association committee has set up the following as a tentative list of sizes.

Mounting Dimensions of Race

	Inside Diameter	Outside Diameter
304	.7874 inches	2.0473 inches
305	.9843 inches	2.4410 inches
307	1.3780 inches	3.1493 inches
309	1.7717 inches	3.9370 inches
311	2.1654 inches	4.7244 inches
314	2.7559 inches	5.9055 inches
317	3.3465 inches	7.0866 inches
320	3.9370 inches	8.4646 inches
323	4.5276 inches	9.8426 inches
329	5.7087 inches	12.2047 inches
336	7.0866 inches	14.9606 inches

This list of sizes will take care of motors up to approximately 150 H.P. The committee desires a full discussion of this selection, not only from the builders of motors, but from the builders of bearings, as well as from the users of motors. It should be pointed out that while it is desirable to have the number of sizes held down to the irreducible minimum, it would be unwise to unduly penalize certain sizes of motors by compelling the designing engineer to use a bearing much too large. On the other hand, it should be pointed out that one of the pitfalls into which motor designers most frequently fall, is that of using a bearing too light for the hardest service into which the particular motor under consideration eventually finds itself.

The committee recommends that each Association section save a place on their program for the coming year for one paper with the discussion on the general subject of ball and roller bearings, because it is recognized that only by a thorough discussion of the subject will we be able to arrive at the best possible solution. The data which will naturally come out in these discussions should then enable the bearing committee for the following year to reach a definite conclusion as to the minimum number of sizes which can be used for motors up to 150 hp. Above this size it will probably be best to give the motor designer a little more freedom than in the smaller sizes. However, this question can be more definitely settled after a year's discussion.

This report was discussed by A. C. Cummins, Electrical Engineer Carnegie Steel Company, Duquesne plant; E. S. Jefferies, Electrical Superintendent, Steel Company of Canada; F. O. Schnure, Electrical Superintendent of the Sparrows Point plant of the Bethlehem Steel Company; J. M. Hipple of the Westinghouse Electric & Mfg. Co.; J. R. T. Bell of the Rollway Bearing Company; K. E. Brunner of the SKF Industries, Inc.; F. W. Caldwell of the General Electric Company.

In January, 1924, Mr. J. S. Murray, Electrical Superintendent, Follansbee Brothers Company, at Toronto, Ohio, prepared an article for the IRON AND STEEL ENGINEER, covering the subject of "Anti-Friction Bearings vs. Sleeve Bearings." Mr. Murray's conclusions in this paper were that the Association of Iron and Steel Electrical Engineers should proceed slowly and cautiously in their adoption of any type of bearing at least until the sealed sleeve bearing had been thoroughly tried out.

During the year 1924 under the direction of Mr. D. M. Petty, meetings covering the subject of Anti-Friction Bearings were held in the Birmingham, Chicago, Cleveland, Philadelphia and Pittsburgh sections of the AI&SEE.

The five meetings held before the various sections were attended by the members of the A. I. & S. E. E. and the Operating Executives of the Iron and Steel Plants of the United States.

It was then evident that the entire industry was awakening to the possibilities of the Anti-Friction Bearing and many experimental applications were being made, particularly on various auxiliary drives.

However, the major interest at this time was motors, next cranes, then auxiliary drives around the plants and last in importance at that time was roll and pinion necks.

All of the technical matter presented during that year before the AI&SEE had to do namely with motors. Papers were presented upon the following subjects by the following authors:

"Application of Anti-Friction Bearings"

By F. W. Gurney, Gurney Ball Bearing Co.

"Mounting and Maintenance of Roller Bearings on Electric Motors"

By D. E. Batesole, Norma Company of America.

"Ball Bearing Applications and Maintenance"

By H. R. Reynolds, Fafnir Bearing Company.

"Application of Anti-Friction Bearings"

By H. E. Brunner, SKF Industries, Inc.

"Selection, Installation and Operation of Anti-Friction Bearings"

By J. R. T. Bell, Rollway Bearing Company.

"Mountings and Maintenance of Roller Bearings in Electric Motors"

By U. B. Wachtler, Hyatt Roller Bearing Co.

"Design and Application of Roller Bearings"

By T. D. Crow, New Departure Mfg. Co.

These papers were discussed by D. M. Petty, A. H. Allen, F. O. Schnure, H. A. Lewis, R. Pruger, E. W. P. Smith, Phillip C. Jones, E. E. Eby, J. M. Kelly, S. Farrel, A. J. Porskievies, W. T. Bierns, H. C. Cronk, L. J. Hess, J. M. Parsons, R. W. Drake, James Farrington, R. H. DeMott, James Thompson, H. W. Brown, H. E. Davis, R. S. Shoemaker, A. Jones, J. M. Hipple and G. A. Unger.

Mr. D. M. Petty, who was then Chairman of the Special Bearings Committee, offered the following conclusions to these papers:

The subject of applying ball and roller bearings to electric motor has been before the Association of Iron and Steel Electrical Engineers for several years . A number of the steel plant engineers have tried both ball and roller bearing motors and found them very satisfactory. A number of the motor builders are putting motors on the market equipped with ball and roller bearings.

In order that all members of the Association could inform themselves on this subject, it was considered advisable to discuss it at section meetings in Philadelphia, Chicago, Cleveland and Pittsburgh under the title "Mounting and Maintenance of Roller and Ball Bearings in Electric Motors." A ball bearing engineer and a roller bearing engineer prepared a paper for each meeting and we are indebted to each of them for their excellent work. Judging from the discussion which took place at each of these meetings, the users of motors are rather anxious to find a bearing that will give less trouble directly and indirectly than present bearings, and sooner or later these men will insist on having their motors equipped with ball or roller bearings.

We are familiar with the obstacles which apparently stand in the way of standardizing the mounting dimensions of the mill type motors and the fact that though only fractions of an inch in many cases prevent interchanging these various makes of motors of equivalent size, they cannot be changed to a standardized dimension sheet without a large cost.

To prevent a repetition of this economic crime in the matter of ball and roller bearings, the Bearing Committee of the Association of Iron and Steel Electrical Engineers have been working with a committee from the Power Club and a group of ball and roller bearing engineers, endeavoring to select a group of ball bearings and roller bearings that can be set up as the standard bearings to be used in electric motors.

Such a list was worked out tentatively during the Convention at Buffalo in September, 1923. The various motor designers took this list back to their offices and made a study of it. In January, the Power Club Bearing Committee called a meeting with the bearing engineers to discuss the subject further. Since that time the ball bearing engineers have been giving the subject further study. Early this summer, at least a tentative list of standard bearings should be available. When this list is set up the users of motors can then proceed with their program of changing over motors from sleeve to roller or ball bearings; the builders can also lay out lines of motors equipped with ball or roller bearings.

A great deal of discussion has taken place in reference to the size of ball or roller bearings that should be used with a motor of given ratings in horsepower and speed. While this is necessary in making a study of the subject, it is not essential to standardization.

The great saving due to standardization will be accomplished if we select a list of sizes; the designers can use any one of these sizes he cares to in his motor; the user will buy those motors which are best equipped, taking into consideration both reliability and price.

As it has been pointed out in the various papers, ball or roller bearings must be properly mounted and properly maintained if they are to be of real value in helping the iron and steel industry produce more at lower cost.

It is the hope of the Bearing Committee that these papers will be of some assistance to those members of the Association who are considering ball or roller bearings for their motors.

During the year 1925 no technical sessions were held covering this subject, as it was felt at this time, that it would be well for the Association as a whole to gather data and experience from existing installations, also from new applications and report them in the following year.

In November, 1926, at Youngstown, Ohio, the Association and representative bearing manufacturers met in an all-day session at which time the bearing manufacturers exhibited their developments, products, also their drawings, showing projected developments.

About 200 engineers attended this meeting and the advantages of roll neck applications were freely discussed in informal groups.

It was then evident that applications of this nature were being given serious consideration. The papers and authors that day were as follows:

TOPICAL DISCUSSION

"RECENT DEVELOPMENTS IN BALL AND ROLLER BEARING APPLICATIONS"

By

F. H. Buhlman, Rollway Bearing Company.
H. D. Else, The Timken Roller Bearing Co.
F. E. Erickson, SKF Industries, Inc.
J. M. Kelly, Hyatt Roller Bearing Co.
D. E. Batesole, Norma Hoffman Bearing Co.
H. E. Reynolds, Fafnir Bearing Co.

The discussion was contributed by R. S. Shoemaker, J. M. Kelly, Phelan McShane, R. B. Davenport, S. S. Wales, S. J. Randall, J. S. Murray, J. R. Lewis, M. W. Cobbledick and Mr. Knotts.

In the presentation and discussion of these papers, many interesting facts were developed.

1st: Opinions of the Engineers and Operators of the Steel Plants were so crystalized that they were ready to accept recommendations on practically any type of application in the Steel Plants.

2nd: The opinions expressed, covered a wide range of applications and were not confined to motors alone.

3rd: Anti-Friction Bearings were being applied on Electric Overhead Traveling Cranes.

4th: That Anti-Friction Bearings had been applied to table rollers as early as 1914 and were also operating successfully on all the table rollers of one of the modern bar mills of the Youngstown district.

5th: Thousands of Open Hearth Charging Cars were equipped with Anti-Friction Bearings.
14 Plate Mill Tilting Tables, 20 Bar Mills, 7 Strip Mills, 4 Blooming and Billet Mills, 7

Structural Mills had applied Anti-Friction Bearings to table rollers.

6th: That six Steel Plants in various parts of the country had and were applying Anti-Friction Bearings on Roll Necks.

7th: That a better adjustment of gauges may be accomplished through the use of Anti-Friction Bearings, than with the use of Standard Brasses, on Roll Necks.

At the annual convention in June, 1927, Mr. Fred Waldorf, Timken Roller Bearing Co., presented a paper covering "The Application of Tapered Roller Bearings on Roll Necks of Rolling Mills and Pinion Stands."

Mr. C. J. Klein, of the United Engineering & Foundry Co., presented a paper "Bearings For Use in Rolling Mills."

Mr. E. C. Gainsborg, SKF Industries, Inc., presented a paper "Anti-Friction Bearings on Roll Necks of Rolling Mills."

Mr. F. H. Buhlman, Rollway Bearing Co., presented a paper, "Factors Governing the Design of Roller Bearings for Roll Necks."

Mr. F. W. Cramer, then with the Bethlehem Steel Company, presented a paper, "An Analysis of the Motor Bearing Problem."

The technical session at which the above papers were presented was attended by over 400 executives and operators from the steel plants.

Mr. Buhlman's paper dealt largely with what principles were used by his company in the design of Roller Bearings for Roll Necks. One of his conclusions were that the application of roller bearings to cluster and four-high mills, did not present any serious difficulties, since due to the arrangement of the backing up rolls the bearings may be made as large in outside diameter as desired. At the same time load conditions are more favorable since the rolls are backed up the total length, reducing bending and deflection.

However, Mr. Buhlman did feel that the commercial two-high and three-high mills presented the greatest limitations, the load conditions being very severe.

Mr. Waldorf's paper claimed that with the use of Anti-Friction Bearings on Rolls, savings of power as high as 60 per cent had been obtained, also an appreciable savings could be effected in maintenance and repairs. This paper also covered an exhaustive test made on a three-high 22" bar mill and a 16" bar mill. The results of this test were presented in charts and tables. The following test was made to determine the load:

To determine the load to which the bearings were subjected, a Brinell test was made during the Cold Test. The equipment used to make this test consisted of two .30 to .40 Carbon Steel plates 5"x4"x½". These plates had both faces ground smooth. Also, two hardened plates 5"x4"x¾" with spherical recesses ¼" deep, space to hold four 1" diameter balls were used. The mill screws were loosened, the breaker blocks removed and the recessed plates placed in holders on top of the top-roll rider. The balls were placed in the recesses, the impression plate placed on the balls and the mill screws run down and tightened. In this way the impression plate on top of the balls received the Brinell impressions from the balls caused by the spreading of the rolls when the cooled bloom passed through the mill. The impression plates were then removed and the same diameter impressions duplicated on the Olsen testing machine. The load required to make each of the duplicate impressions multiplied by the number of impressions on each plate gave the load per roll neck and therefore the load on each bearing. In this case it was found that the load on the roughing end of the roll was 658,800 pounds and the load on the finishing end 415,750 pounds.

Mr. Waldorf's paper also contained a list of the various applications of Anti-Friction Bearings to Roll Necks. This information, contained size of mills, products rolled, size of bearings used, rated radial capacity, etc.

Mr. Klein's paper claimed that the application of bearings to rolling mill equipment was receiving the attention of all mill builders . This being due largely to the fact that 30 to 60 per cent of the power expended by the driving units is lost in bearing friction.

Also, that the use of Anti-Friction Bearings was steadily increasing and the outstanding feature in their use, was the power savings. As an example he claimed a large portion of the power used to roll Hot Strip Steel in bronze bushed with babbitted insert bearings, is wasted in journal friction, but with the use of Anti-Friction Bearings, the losses were nil.

Two charts showing some of the typical bearing arrangements as used on mill roll necks was very interesting. It was noted that there is today quite a number and variety of mountings for doing the same kind of work. This being due to each Rolling Mill Operator having a certain definite knowledge of one type of mounting and standardizing on it.

Mr. Klein's paper reviewed the use of bearings on all classes of mill applications.

Mr. E. C. Gainsborg claimed in his paper, with the present fund of information available that it would be a difficult task to present specific data on the application of Anti-Friction Bearings to Roll Necks.

Mr. Gainsborg described a device developed by their engineering department that may be used to obtain continuous journal pressure readings on either cold or hot rolling mills, with little or no interference in production. The design of this measuring unit is based on the strain gauge principle. It consists of two elements. First, the part upon which the load is imposed; second, the part which indicates the imposed load. Mr. Gainsborg's conclusions on Hot and Cold Rolling were very interesting.

Mr. F. W. Cramer's paper reviewed the A. I. & S. E. E. history in connection with Anti-Friction Bearings and sleeve type bearings so far as motors were concerned. This was a very able presentation covering both types of bearings and provoked a discussion by the operators in the steel plants, which brought out many diversified opinions.

The discussion of all of the papers presented at the annual convention covering Anti-Friction Bearings was very interesting and the following participated: B. R. Shover, D. M. Petty, W. Trinks, E. C. Gainsborg, C. J. Klein W. A. Petry, F. Wal

dorf, S. R. Cox, A. J. Standing, R. H. DeMott, J. D. Rowbotham, F. H. Buhlman, J. H. Van Campen, A. M. McCutcheon, J. L. Brown and J. S. Murray.

In March, 1928, a questionnaire covering the use of Anti-Friction Bearings to Roll and Pinion necks was submitted to the Steel Industry. The questions and answers were as follows:*

*These answers represent approximately 50% the steel mill tonnage in the United States.

Question No. 1.

What do you consider the chief limitation to the use of roller bearings for this service?

Answers:

Inability to reduce diameter of roll necks	1
Limits roll dressing	2
Limitations in bearing design	2
Mental inertia	1
Space on old mills	4
Difficulty of keeping dirt out of bearing	1
Cost of installing on new mills	1

Question No. 2.

What disadvantages can you suggest in regard to such application?

Answers:

Inability to take end thrust	2
Inability to obtain full life out of rolls on small three-high shape mills	1
Increase neck breakage due to unequal temperature	1
Increase time of roll changes	3
None	4

Question No. 3.

Roller bearings, consequently roll necks, can be cooled to about 250° by an oil circulation system on the bearings.

Do you think such cooling would tend to cause neck breakage,, particularly in the case of hot sheet mill rolls?

Answers:

Plate Mills and Hot Sheet Mills	
Yes	7
No	1
Other Mills—No	3
Yes	0
No answer	1
Oil cooling system too complicated	1

Question No. 4-A.

Will the fact that there is practically no wear on roller bearings, either transverse or longitudinal, eliminate any trouble in mill operation?

Answers:

Yes	10
No	0

Question No. 4-B

Will the elimination of wear both transverse and longitudinal in roll neck bearings prove to be of value to mill operation?

Answers:

Yes	10
No	0

Question No. 4-C.

Will it help to roll more accurate products?

Answers:

Yes	9
No	1

Question No. 4-D.

Will it lengthen the time between roll dressings?

Answers:

Yes	3
Doubtful	2
No	5

Question No. 5.

Have you ever made temperature tests on roll necks after a steady run of the mill?

Answers:

No	10
Yes	1

Question No. 6.

If so, will you please give the results?

Answers:

One (1) Yes to Question No. 5 comments that studies produced such wide variations in results that no safe conclusions of a general nature could be drawn from them.

BACK-LASH

Back-lash presents quite a problem because its elimination by means of drags would materially reduce the power savings due to the use of anti-friction bearings.

Question No. 7.

Have you experienced any trouble from this source in the use of roller bearings?

Answers:

Yes	0
No comments	10
No	0

Question No. 8.

If so, how was it corrected?

Answers:

No comment	10

Question No. 9.

Do you think the ordinary coupling box fits will cause serious back-lash?

Answers:

Yes	4
No comment	2
No	1
Depends on kind of mill and work	4

Question No. 10-A.

If so, would finishing wobblers and coupling boxes remedy the trouble?

Answers:

Yes	0
No comment	3
No	2
Help, but not cure	5

Question No. 10-B.

What clearance would you use for such fits?

Answers:

1/8"	5
1/2"	1
1/16"	2

Question No. 10-C.

Would the life of the finished surfaces be long enough to warrant the expense?

Answers:

Yes	2
No	6

Question No. 11.

Would you prefer universal couplings to finished boxes and wobblers?

Answers:

Yes	8
No	1
Small Bar Mills—No	3

NECKS

With the present practice in regard to the diameter of roll necks, it is frequently found impossible to apply roller bearings to two and three-high stands. To attempt to determine whether or not neck diameters could be reduced to permit the use of roller bearings without danger of neck breakage, your experience or opinions are requested in regard to the following:

Question No. 12.

What are the chief causes of neck breakage?

Answers:

Heat cracks	8
Mis-alignment	1
Bending	3
Shocks	1
Poor lubrication	4
Defects in rolls	2
Improper design	1
End thrust that wears away fillet	1
Necks too small	1

Question No. 13.

Is there any standard ratio between roll and neck sizes for various roll diameters?

Answers:

Depends on type of mill	3
Yes	2
No	5

Question No. 14.

Is the present diameter of necks in proportion to that of the rolls necessary to obtain torsional strength in the necks, or is it to minimize the unit pressure on the bearings?

Answers:

Present necks are oversize	3
To minimize bearing pressure	6
Torsional strength	3
To limit heating and cooling strains	1

Question No. 15.

If power required for rolling can be reduced from 40% to 50% by the use of roller bearings, and if present neck diameters were necessary either for reason of torsional strength, or to obtain low unit bearing pressure, can neck diameters be safely reduced if roller bearings are used?

Answers:

Yes	6
No	2
Except hot plate and sheet and tin mills	2

Question No. 16.

To what extent would such reduction be limited by the necessary diameter of the wobbler?

Answers:

None	10

Question No. 17.

What effect does the radius of the fillet between neck and body have on the strength of the former?

Answers:

Apparently none.
It does effect strength of roll and prevents neck from breaking close to body.

Question No. 18.

What rule do you use to determine the radius of this fillet?

Answers:

Big as possible	3
No comment	3
No rule	3
Taper radius	1

Question No. 19.

The point of application of roller bearing is closer to the body of the roll than in the case of standard bearings. Will this fact allow of a reduction in the diameter of the neck, and still maintain the desired strength?

Answers:

Yes	7
No comment	2
No	1

From the general tone of the replies to the above questions we may deduce the following general conclusions:

1. Steel mill engineers are interested in the application of anti-friction bearings to rolling mills.
2. Roll necks in general can be reduced if anti-friction bearings are applied.
3. The prevention of dirt working its way into the bearings is one of the most serious problems.

4. Proper lubrication of the bearings must be worked out in a simple yet reliable manner.
5. The expense of making any installation must be justified by a saving in operating expenses.
6. It is quite evident that formulae for roll neck design is badly needed.

In order to reduce to the absolute minimum the inventory of spare bearings necessary to properly protect a group of mills, standardization of bearing dimensions should be undertaken at the earliest possible date. This standardization could well be started by establishing at the present time, diameter increment of say ¼" for the smaller sizes and ½" for the larger sizes.

In reference to the diameter of roll or pinion necks on which anti-friction bearings are mounted, it should be noted that there is no wear on the neck and therefore, its diameter remains constant throughout the entire life of the pinion or roll so that standard bearings could always be applied. This is one of the reasons why standardization of neck diameters is not only desirable, but also entirely feasible.

It is the recommendation of this Committee that the matter of standardization of roll necks be given full consideration in next year's program, as this should be the first step in standardizing anti-friction bearings on rolling mills.

In June, 1928, at the annual convention the following papers were presented before the membership:

"Anti-Friction Bearings for Auxiliaries in the Iron and Steel Industry"
By E. S. Jefferies, Steel Company of Canada.

"Anti-Friction Bearings for Electric Motors"
By J. S. Murray, Follansbee Brothers Company, Follansbee, W. Va.

"Anti-Friction Bearings for Roll Necks"
By J. H. Van Campen, E. W. Bliss Company, Salem, Ohio.

Mr. Jefferies brought out in his paper that when Anti-Friction Bearings are applied to Auxiliary Equipment it generally necessitates a higher initial cost on the total equipment, but this increased cost is but a fractional percentage of the total and the increased investment is amply returned in improved operation, considerable power saving, reduced maintenance charges, elimination of costly repairs and subsequent delays or shutdowns.

The author also traced the use of Anti-Friction Bearings in the Blast Furnace, Open Hearth, Transportation Dept. and Finishing Mills.

He also brought out that on a certain mill tilting table (not Steel Company of Canada) as high as seventeen brass bearings were required each week. After Anti-Friction Bearings had been installed only five bearings were replaced in five years operation.

Mr. J. S. Murray's paper dealt with Electric Motors entirely. One point brought out was a mill superintendent's opinion, as follows:

"In the last analysis, the absolute reliability of Anti-Friction Bearing Motors is their greatest advantage. When properly designed, they require practically no attention and the units may stopped, started, or the speed varied from remote points with absolute certainty of proper functioning."

Another point "the fact that lubrication is made much more reliable. There are no rings to jump off the shaft and should the grease cups be broken from the housing the lubricant will not leak out. Also there are very few cases of rotors rubbing on stators.

A survey made at five representative plants developed the following:

SAVINGS EFFECTED ANNUALLY BY THE USE OF ANTI-FRICTION BEARING MOTORS

Lubrication		Maintenance and Repairs
Lubricants	Labor	
83%	74%	85%

Mr. J. H. Van Campen's paper covering the application of Anti-Friction Bearings used on Roll Necks brought out the following:

"There are four types of Anti-Friction Bearings used on Roll Necks, Ball, Straight Roller, Taper Roller and Spherical Roller.

"The success of Roll Neck Anti-Friction Bearings depends practically upon three factors:

1—The selection of the proper type and size of bearing.
2—The proper mounting of the bearing on the roll neck.
3—The lubrication of the bearing.

"On the various types of mills the backed up type such as the Cluster Mill and the Four High Mill offer the best conditions for Anti-Friction Bearing Applications as the allowable space limits are greater than any other type of mill. Next comes the Two High Mill, and last, the Three High Mill. The greatest percentage of Anti-Friction Bearing Applications to date have been made on the backed up type of mill."

One of Mr. Van Campen's conclusions was:

"The use of Anti-Friction Bearings affords a power savings of about 40 to 50%. A saving in lubrication and a better control of tolerances on finished products consequently reducing rejections, all of which means a reduction in manufacturing costs."

Mr. Van Campen also presented figures indicating the number of mills using Anti-Friction Bearings on Roll Necks which were as follows:

71 Four High Mills	34 Cold	37 Hot
17 Cluster Type	17 Cold	0 Hot
22 Two High	16 Cold	6 Hot
12 Three High	0 Cold	12 Hot
4 Four High	0 Cold	4 Hot
1 Piercing Mill	0 Cold	1 Hot

In the August, 1928, issue of the IRON AND STEEL ENGINEER, the following article appeared:

"Analysis of Power Consumption Test, 16" Mill Roughing Stand, Timken Steel Mill."

"Timken Bearings vs. Plain Bearings on Roll Necks," by F. Waldorf.

In Mr. Waldorf's paper 12 typical Wattmeter curves were presented which indicated the total KW Hours, the no load KW Hours and the net rolling KW Hours consumed when rolling with Timken Bearings and Plain Bearings. Also three tables indicating the Power Savings when using Anti-Friction Bearings in place of Plain Bearings.

One point brought out by Mr. Waldorf was that in his opinion the Steel Plants and Producers should determine the loads imposed upon their mills for the various classes of rolling.

Another point brought out, was that before the Anti-Friction Bearing Manufacturers could assume

the responsibility of fixing the size of the bearing to be used on any given application, that tests must be made by the Steel Plants, which will indicate without question, the ultimate loads which is to be imposed upon the mill. This means therefore that tests will of necessity have to be made of every type of mill, under every condition of rolling. The action of steels of different analyses and temperature in mills of various sizes would have to be observed. The resultant data must be compiled in such form as to permit its use with confidence.

During the fall of the year 1928 and the spring of 1929 Mr. F. D. Egan, Elec. Supt. of the Lackawanna Plant of the Bethlehem Steel Company, also the Chairman of the Special Committee on Bearings met at the various Steel Mill centers in the United States and it was agreed and sanctioned by the Association that the Special Committee on Bearings should review the entire Anti-Friction Bearing work that has been carried on in the past by the A. I. & S. E. E. and any other available data. After a number of meetings it was agreed that the Special Committee on Bearings would collect, tabulate and publish, all data available on Anti-Friction Bearings, the program to be as follows:

Part 1—The application of Anti-Friction Bearings to Mill Type Motors.

Part 2—The application of Anti-Friction Bearings to General Purpose Motors.

Part 3—The application of Anti-Friction Bearings to Electric Overhead Traveling Cranes.

Part 4—The application of Anti-Friction Bearings to Mill Roll Necks and Pinion Necks.

The first report covering Mill Type Motors was completed and presented to the Association in June, 1929, at their Annual Convention. This report in detail may be found on pages 355 to 362 incl., June, 1929, issue of the IRON AND STEEL ENGINEER.

In addition to this report a questionnaire covering, "A Special Study Regarding Lubrication of Anti-Friction Bearings on Mill and Crane Motors," was sent out to the Steel Industry, Lubrication Manufacturers, Motor Builders and all other interested parties. The questionnaire, the answers and the discussion appeared in the July, 1929, issue of the IRON AND STEEL ENGINEER on pages 415, 416 and 417.

The Special Committee on Bearings are now engaged in the tabulation of all available data, in connection with General Purpose Motors and Electric Overhead Traveling Cranes. This tabulation will be presented at their next annual meeting which will be held in June, 1930, at Buffalo, N. Y.

The fourth and last part of the program, of the Special Committee on Bearings will be: The Application of Anti-Friction Bearings to Roll and Pinion Necks. This task and responsibility, will require the co-operation of the entire operating personnel of the Iron and Steel Industry.

There are so many variables to be taken into consideration, so much data to be collected, that this task alone will resolve itself into at least a three-year program.

One of the first questions in this connection, which must be settled before any real headway may be assured is:

How and by what method shall rolling mill pressures be determined. Is it not reasonable to expect that some definite procedure should be decided upon, some formula advanced, which will be acceptable to the Anti-Friction Bearing Manufacturers and the Iron and Steel Industry. In view of this situation the A. I. & S. E. E. will conduct a technical session at which time all of the Anti-Friction Bearing Manufacturers and the operating personnel of the Iron and Steel Industry will be invited to present their particular phase of this question. This meeting will be held February 20th, 1930, at Pittsburgh, Pa.

In conclusion, this review has been presented with the idea of refreshing the memories of the readers of the Iron and Steel Engineer as to where the data and information of what the A. I. & S. E. E. has compiled in connection with Anti-Friction Bearings may be found and used with profit.

Electrical Drives for Steel Plants

By A. F. KENYON*

Modernization of existing plants and construction of new plants for the production of iron and steel have proceeded at a high rate during the year 1929. The early months of the year just closed were marked by exceptionally high operating rates and new high records for steel ingot production have been established. Electrical drive of all principal machines enables more flexible and easier controlled operation than was possible with older methods of drive, and has contributed greatly to the attainment of the high operating rates which have been witnessed. Thus the year has also been notable because of the large number of new electrical drives which have been installed or ordered. During the year approximately 300,000 H.P. in main roll drives, 300 H.P. and larger, have been sold, making the total capacity on main roll drives more than two and one-half million horsepower.

The following tabulation indicates the types of equipment which have been furnished during the year by the Westinghouse Electric & Manufacturing Company.

Type of Drive	No. of Units	Total H.P.
D.C. Reversing	13	56,525
D.C. Continuous Running.....	52	35,850
25 Cycle Induction	7	6,850
60 Cycle Induction	10	10,050

*Steel Mill Engr., Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

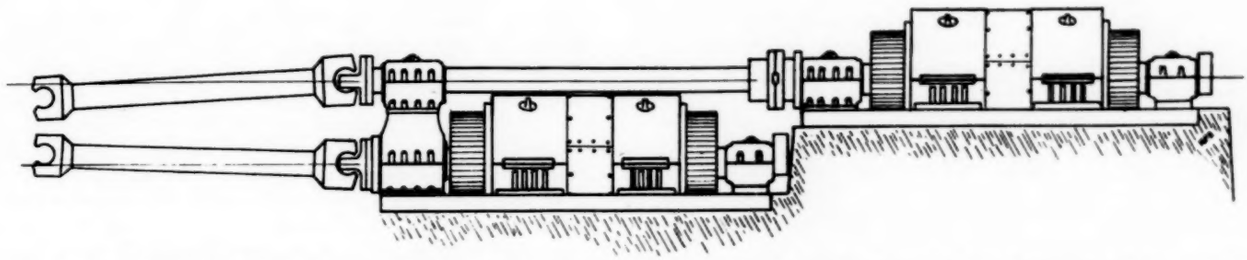

Fig. 1. 54" Blooming Mill Drive at Illinois Steel Company. Pinion Stand has been omitted and upper and lower rolls will be separately driven by two 5000 H.P. reversing motors.

25 Cycle Synchronous	7	17,000
60 Cycle Synchronous	15	20,800
TOTAL	104	145,575

Again, as in recent years, direct current drives greatly exceed alternating current drives in number and capacity, the number of reversing mill drives contracted for during the year being especially notable. For constant speed drives, synchronous motors continue to be most extensively applied and induction motors find use principally where flywheel effect is necessary or where maximum starting torque with minimum line disturbance is required. For extensions to existing large plants, 25-cycle equipments are still installed, but practically all new plants and plants where purchased power is used, install 60-cycle apparatus and in some cases 60-cycle equipment is replacing old 25-cycle machines.

The Illinois Steel Company at South Chicago are installing a large wide flange beam mill, to be driven by six direct current reversing motors and a constant speed synchronous motor, totalling 30,000 H.P. A number of unusual features will be contained in this important installation.

To drive the 54" blooming mill, two 5000-H.P., 40/80 R.P.M., 700-volt, reversing motors are being built. On all previous blooming mills, the upper and lower rolls have been driven through a pinion stand by a single motor. In this case, the pinion stand is being omitted and the upper and lower rolls will be separately driven by the two 5000 H.P. reversing motors, there being no mechanical connection except the steel between the rolls. By this means the first cost of the installation is materially reduced and improvements in operation are expected. The two 5000 H.P. reversing motors have a total combined emergency torque capacity of 3,940,000 pound feet, thus making this blooming mill the most powerful of any yet installed. Power for the two reversing motors will be furnished by a motor generator set consisting of three 3000 KW., 700-volt generators, operating in parallel, a 6500 H.P. wound rotor induction motor and a 180,000-pound flywheel.

The 52" universal roughing mill will be driven by a 7000 H.P. motor on the main rolls and a 2000 H.P. motor on the auxiliary edging rolls, both supplied with power from a 7000 KW. flywheel motor generator set.

The 52" universal intermediate mill will be driven by a 6000 H.P. main and a 2000 H.P. auxiliary roll reversing motors. These two reversing motors are to be supplied with power from a synchronous motor generator set, consisting of two 3000 KW. 700-volt D.C. generators, an 8500 H.P., 3-phase, 25-cycle, 2200-volt, 375 R.P.M. synchronous motor and a direct connected exciter. This is the largest reversing mill drive yet installed using a synchronous motor generator set instead of the customary flywheel motor generator set. The largest equipment now in operation with a synchronous set is of 3000 KW. capacity, driving a 30" billet mill.

An unusual application of reversing mill motors is being made to operate the rams of a large ingot press which will be used to compress wrought iron sponge balls to rectangular ingot form, preparatory to rolling in a blooming mill. This installation is being made at the new plant of the A. M. Byers Company. The main ram, capable of exerting a pressure of 750 tons to form the cross-section of the ingot, will be driven by a 1200 H.P., 125 R.P.M. reversing motor, and the auxiliary 200-ton ram, which shapes the ends of the ingot, will be driven by a 325 H.P., 250 R.P.M. motor. Power is furnished by a synchronous motor generator set, consisting of a generator for each reversing motor, a 1500 H.P., 600 R.P.M., 3-phase, 60-cycle, 6600-volt, synchronous driving motor and a direct connected exciter. The generators and reversing motors are designed with special field characteristics and the control provided with automatic limit switches and speed limit governors to make the operation largely automatic and to prevent damage to the press by careless manipulation.

At their Alabama City plant the Gulf States Steel Company are replacing an old steam-engine-driven blooming mill with a new 40" motor-driven mill. The driving motor on the new mill is of 7000 H.P. 50/120 R.P.M., 700-volt capacity, capable of exerting a maximum torque of 2,000,000 pound feet. Power is supplied by a motor generator set consisting of two 3000 KW., 700-volt generators, a 5000 H.P., 3-phase, 60-cycle, 6600-volt, 352 R.P.M. wound rotor induction motor and a 140,000 pound flywheel. A similarly rated equipment is being furnished for a 40" blooming mill for the Great Lakes Steel Corporation at Ecorse, Michigan.

A 4000 H.P., 80/160 R.P.M., 800-volt, single armature, reversing type motor and 3200 KW. flywheel motor generator set, are being furnished the Gulf States Steel Company to drive a 32" three-high universal plate mill. In normal operation the mill is not reversed, but it is often desirable to enter the steel at a slow speed, so that the drive must be capable of rapid acceleration and retardation, similar to a reversing mill drive. Also it is very desirable to roll at slow speeds during the early roughing passes, and at much higher speeds during the long finishing passes. This mill is de-

signed to produce light gauge plates and it is necessary that rolling be accomplished in a minimum of time in order to secure maximum production and to finish the rolling before the temperature becomes too low. The screwdown is equipped with an automatic pre-set limit switch and control so that screwdown settings are made automatically for each pass, requiring less attention from the operator and reducing the time of the intervals between passes.

Synchronous motors have been quite extensively used to drive seamless tube mills and have proven satisfactory for this severe application. Six synchronous mill motors from 1000 H.P., to 3500 H.P. and totalling 14,000 H.P., are being furnished for the National Tube Company to drive the piercing, expanding and rolling mills of two new seamless tube mills now under construction at McKeesport, Pa. The motors are designed to have 350% pull out torque, and will be subjected to very heavy load peaks. The 2000 H.P., motor for the larger rolling mill will operate at a speed of 62½ R.P.M., and due to this slow speed and the large overload capacity, the machine will be of very large physical size. All of the motors are designed for 100% power factor, 3-phase, 25-cycle, 6600 volts.

Two large 60-cycle, 6600-volt, synchronous motors are being furnished to drive the bar mill at the Great Lakes Steel Corporation. A 4000 H.P., 138 R.P.M., motor will drive the roughing group of stands, and a 5000 H.P., 300 R.P.M. motor will drive the intermediate group of stands of this large continuous mill.

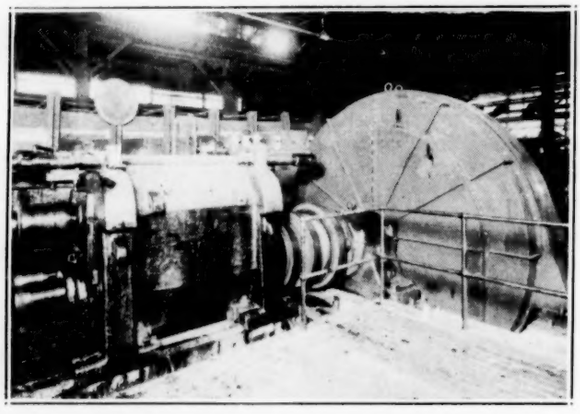

Fig. 2. 1800 H.P. Motor, 150-R.P.M. 80% Power Factor, Piercing Mill drive at Allenport Plant of Pittsburgh Steel Company.

Other smaller synchronous mill motors are being furnished by the Westinghouse Company to the Aluminum Products Company, the American Sheet and Tin Plate Company, the American Tube and Stamping Company, the Hoskins Manufacturing Company, The Riverside Metal Company, and the Standard Underground Cable Company, to drive hot and cold sheet mills, a strip mill, a merchant mill, and a copper rod mill. This list is indicative of the wide variety of mills to which synchronous motors are being applied.

For adjustable speed service, direct current motors are most extensively used, and no A.C. adjustable speed sets have been furnished during 1929. For continuous mills, operating at high delivery speeds, individual direct current motors are applied to each of the several finishing stands, and in some cases to the roughing stands also. A continuous rod mill has been placed in service at the Cuyahoga plant of the American Steel and Wire Company and strip mills have been started at the Acme Steel Company, and at the McDonald plant of the Carnegie Steel Company. Equipment is on order for a 12" semi-continuous strip mill for the West Leechburg Steel Company.

The rod mill at Cuyahoga is driven by seven 600-volt, direct current, adjustable speed motors, three of 750 and 600 H.P. capacity driving the several roughing and intermediate stands, and four 400 H.P. motors individually driving the four finishing stands. The stands are located on very close centers, and the rod must be rolled with practically no looping between the finishing stands. Rod is rolled double stand, and this fluctuating load on the roll motors makes it necessary to use motors of very close speed regulation in order to secure satisfactory operation. The four 400 H.P. finishing stand motors are therefore equipped with synchronous pilot machines, which actuate automatic regulators which control the motor shunt field excitation, and hold the speed constant throughout the load range.

The Acme Steel Company have recently started operation of a 10" continuous hot strip mill of four edging and ten flatting stands, designed to produce thin strip material at speeds up to 2500 feet per minute. The fourteen stands are driven by twelve motors ranging from 150 H.P. to 800 H.P., and totaling 5900 H.P., giving individual speed control of all stands except the first four, and thus providing exceptional flexibility in making up rolling schedules. For power supply, there is installed, a five unit synchronous motor generator set consisting of a 6350 H.P., 80% power factor, 3-phase, 60-cycle, 12,000-volt, 514 R.P.M. synchronous motor, two 2000 KW., 600-volt main power generators, a 300 KW., 250-volt, auxiliary power generator and a 100 KW. exciter. This large set is designed for 12,000 volts so that it may be connected directly to the incoming purchased power voltage without intervening transformers.

The West Leechburg Steel Company are now installing a 12" semi-continuous hot strip mill. The roughing stands are driven by a 1600 H.P., 705 R.P.M. wound rotor induction motor, the vertical edging stands by three 100 H.P., 400/800 R.P.M., 240-volt, D.C. motors, and the tandem finishing stands by five 800 H.P., 275/688 R.P.M., 240-volt D.C. motors. Direct current power for the mill motors and auxiliaries is supplied by a 1000 K.W. and a 2000 K.W. synchronous motor generator sets.

Some form of steel enclosed oil circuit breaker switching equipment is used on practically all modern installations. The so-called truck type circuit breaker was introduced several years ago, and has been very extensively applied and satisfactory results obtained. Such equipment has recently been furnished the American Rolling Mill Company, A. M. Byers Company, Great Lakes Steel Corporation, and Illinois Steel Company for the control of 6600-volt, and 2200-volt circuits of their new mills and substations. More recently there has been developed a type of steel

enclosed switchgear in which the removable breaker unit is provided with disconnecting contacts at the top of the terminal bushings, which engage with similar contacts in the stationary housing when the breaker unit is lifted into place. This "vertical lift" type of equipment is somewhat more compact and occupies a smaller floor space than the truck type, and if desired, the bus, current transformers, and other accessories in the stationary housing may be oil or gum impregnated to prevent dust and dirt from accumulating on the insulating surfaces, thus requiring less maintenance. Extensive installations of this type of equipment have been made at the Youngstown Sheet and Tube Company, the National Tube Company, and the Carnegie Steel Company.

The truck type and vertical lift type of switchgear provide complete factory assembled units, which may be very quickly installed and placed in service by the Purchaser. They also have the feature that the circuit breaker unit is removable, so that a spare unit may be substituted for a damaged one in case of accident. In many small installations, the removable breaker feature is not desired, but it is of considerable advantage to have a complete factory assembled, steel enclosed, type of equipment, which can be quickly and cheaply installed. For this class of service, there is now being furnished oil circuit breaker switching equipment, in which the circuit breaker, instrument transformers, disconnecting switches, etc., are permanently mounted in a welded steel framework and completely factory assembled. Such equipment may be very easily and quickly installed, and provides a very substantial and reliable type of mounting.

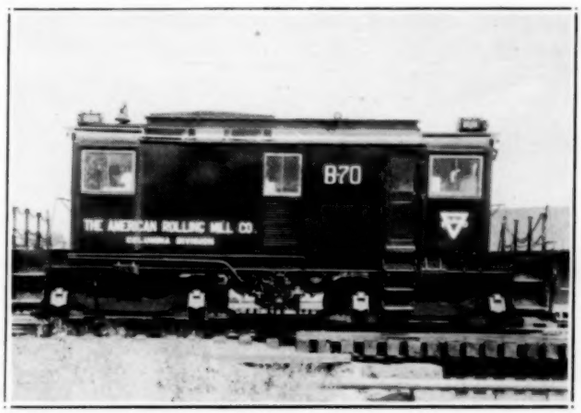

Fig. 3. A 330 H.P. 70 Ton, oil-electric locomotive for yard switching service at Butler plant of American Rolling Mill Company.

A 330 H.P., 70-ton, oil-electric locomotive has been furnished for yard switching service at the Butler plant of the American Rolling Mill Company. Three 400 H.P., 70-ton, oil-electric locomotives are now under construction for switching service at the American Steel and Wire Company and the Great Lakes Steel Corporation.

Application of Electric Drives to Rolling Mills in 1929

By J. D. WRIGHT*

The unprecedented activity in the iron and steel industry, which resulted in record production of steel during 1929, is also indicated by the number of rolling mill electric drives purchased and installed. Main roll drive motors, 300 h.p. and larger, ordered from the General Electric Company alone reached a record total of 139 machines and 182,200 horsepower. This is only about 10% less than the total horsepower of motors purchased by all steel companies from all electrical manufacturers during 1928, which was a year of considerable activity, exceeded only by 1925 in number and horsepower of electric drives added to the country's total.

Hand-to-mouth buying by users of rolled steel products is one of the factors responsible for the great expansion in the use of electric drives. A single mill may be required to roll, during one day, small tonnages of a considerable variety of products. To meet this condition, the mills must be extremely flexible and this flexibility is most readily obtained by using individual adjustable-speed motor drive for all or many of the roll stands. An interesting example of this is a 15-stand, 10-inch merchant mill at the Indiana Harbor Plant of the Inland Steel Company, which will be driven by 13 adjustable-speed, direct-current motors totaling 4900 h.p.

A wide strip mill to be installed by the Illinois Steel Company at Gary, Indiana, will be driven by 12 adjustable-speed, direct-current motors totaling more than 20,000 h.p. This installation is of especial interest for it is the first continuous wide strip mill to use direct-current, adjustable-speed motor drives on the roughing stands. Mills previously installed have had the roughing stands driven by alternating current motors. Power for the 12 direct-current motors will be supplied from 3 synchronous motor-generator sets, each of 4000 kw. capacity at 600 volts d-c. The mill motors will be started and stopped by generator voltage control, eliminating the use of starting resistors and contactors.

During the year, the Sharon Steel Hoop Company placed in operation a high-speed continuous hot strip mill, driven by 11 direct-current motors. The six finishing stands of this mill are placed on such close centers that it was necessary to make the driving

*Industrial Engineering Department, General Electric Co., Schenectady, N. Y.

motors of very small external diameter. Three of the six 1250-h.p., direct-current motors are of single armature construction. The other three motors had to be built as double-armature machines. All six motors are mounted on a common base plate, as shown in Fig. 1. The overall length of the base

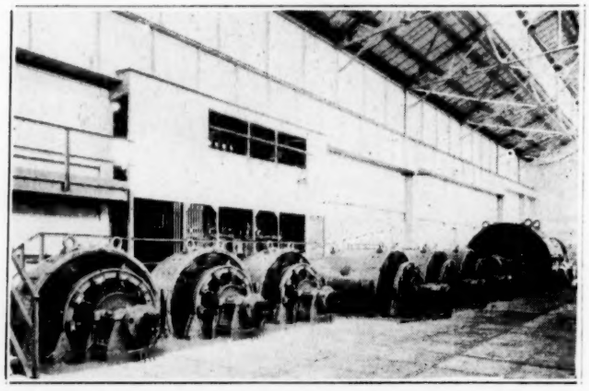

Fig. 1. D.C. Motors driving the 12-in. Hot-Strip Mill. The six 1250-H.P. Motors driving Finishing Stands are mounted on common bedplate. 4500-H.P., 150/450-R.P.M. Roughing Mill Motor in background. The Sharon Steel Hoop Co., Sharon, Pa.

plate is 50 ft. 5 in. The roughing stands of this same mill are driven by an adjustable-speed, direct-current motor of 4500 h.p. capacity over a range from 150 to 450 r.p.m. To build a motor of this capacity and speed range involved many difficult problems in design and necessitated the use of a double-armature machine.

Continuous mills for rolling sheet-bar and billets have usually been driven by a single motor, direct connected or geared to a lay shaft, from which the six or eight stands were driven through bevel gears. A distinct departure from this practice is represented by the drive for a six-stand, 30-inch continuous mill to be installed at the Lackawanna plant of the Bethlehem Steel Company, which will consist of three synchronous motors rated 2500, 3000 and 3500 h.p. respectively. Each motor drives two stands through a tandem herringbone gear set, and the necessary tie-in between the three groups is effected by the synchronous speed of the three motors. So far as can be learned, this is the first time that synchronous motors have been used to provide the equivalent of gearing between stands. This mill is followed by a six-stand continuous 21-inch mill with rolls individually driven by large, direct-current, adjustable-speed motors totaling 13,000 h.p., power for which will be supplied by two motor-generator sets, each consisting of two 2000-kw., 600-volt generators and a 4350-kva., 6600-volt, 25-cycle synchronous motor.

The problem of ventilating the motor room housing and d-c. motors and motor-generator sets on the 21-inch mill has been solved in a manner differing from anything previously done in steel mill practice. The motor room is comparatively long and narrow, with the six d-c. motors located in a row along one side wall, the motor-generator sets being at the other end of the room. A basement extending under the entire motor room will be divided into two parts, one under the motors and one under the motor-generator sets, by surface air coolers extending across the width of the basement. These coolers are of the finned tube type which has been widely used for cooling turbine generators.

Two motor-driven centrifugal fans, located in the basement near the coolers, will draw air from the portion of the basement under the motor-generator sets and force it, under pressure, through the coolers to the basement beneath the motors. The cool air flow up through the d-c. motors, which will have enclosures over the coupling ends, and into the motor room. From the motor room the air will pass through the motor-generator sets and down into the basement, to be picked up again by the fans and forced through the coolers. The synchronous motor of each set will be provided with covers so arranged that air will be drawn in around the shaft by the fan action of the rotor, and discharged into the basement. Each generator will be fitted with a "volute housing," a casing much the shape of an ordinary fan casing, enclosing the magnet frame and extending radially inward almost to the ends of the armature winding. The air discharged by the armature will be collected by this housing and delivered into the basement. These volute generator housings have been used with excellent success in two other steel mill installations.

Thus, the method of ventilating the 21-inch mill motor room will constitute a closed system with continuous recirculation of the air, cooling being effected by the water-cooled air coolers. Under the maximum summer conditions of water and outside air temperature, and with continuous full load on all equipment, the temperature in the motor room will not exceed 95 degrees F. A small fan and air filter will supply make-up air to the system, to compensate for any leakage and maintain all parts of the system slightly above atmospheric temperature, to prevent the ingress of any dust. It is believed that this system is superior to any previously installed, and that it will result in a cleaner and cooler motor room.

The synchronous motors on the 30-inch Lackawanna mill will have individual closed recirculating ventilating systems, with a fan and surface cooler for each motor. This also represents an innovation in main roll drives.

For the new plant which the A. M. Byers Company is building at Ambridge, Pa., to produce wrought iron and wrought iron pipe on a large scale, the General Electric Company is building several mill drives. A 40-inch reversing blooming mill will be driven by a direct-current reversing motor rated 5000 h.p., 50°, 50/130 r.p.m., 900 volts. Power for this motor will be supplied by a flywheel motor-generator set driven by an induction motor. For the 46-inch reversing universal plate mill in this same plate plant there is being built a 4000-h.p., 60/140 r.p.m., 900-volt, direct-current reversing motor which will be supplied with power by a synchronous motor driven motor-generator set without flywheels. It is believed that this is the largest reversing drive yet built which dispenses with the usual flywheels on the motor-generator set. Six direct-current motors totaling 9300 h.p. will drive two skelp mills in this same plant.

In the Detroit district, the newly formed Great Lakes Steel Corporation is building a complete new steel mill. Nineteen large direct-current motors totaling 33,600 h.p. will be used to drive two strip mills and the finishing stands of a bar and billet mill. Power for these motors will be supplied by four three-unit, 5000-kw., motor-generator sets.

A radical departure from usual copper mill practice is represented by a continuous mill for rolling copper rods which has been built in 1929. The finishing stands of this mill are driven by seven adjustable-speed, direct-current motors totaling 3000-h.p. This mill will deliver two strands of copper rod simultaneously at a maximum speed of 3500 feet per minute.

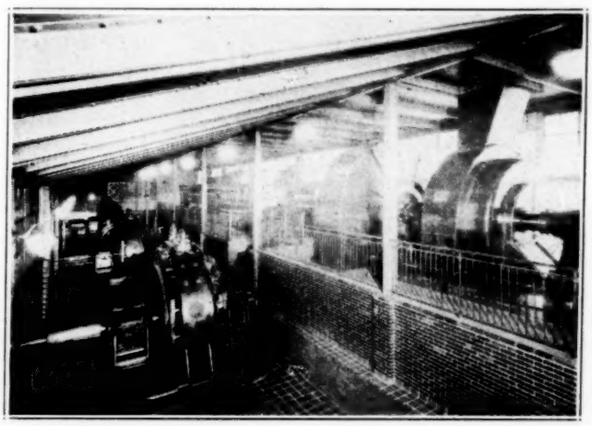

Fig. 2. Three 2000-H.P., 200/400-R.P.M., 600-Volt, D.C. Motors and 4000-K.W. 3-Unit Motor-Generator Set. Motor Room of 14-Inch Skelp Mill, Wheeling Steel Corp., Benwood, W. Va.

During the early part of the year the Wheeling Steel Corporation put in operation at its Steubenville, Ohio, plant what is believed to be the first universal slabbing mill in this country to utilize separate-electric motors on horizontal and vertical rolls. The horizontal rolls are driven by a 7000-h.p., 50/100-r.p.m. motor and the vertical rolls by a 1650-h.p., 112.5/270-r.p.m. motor. The control is arranged so that the two motors accelerate, decelerate and reverse simultaneously and maintain the desired speed ratio. The ratio of the speed of the horizontal to that of the vertical rolls is readily adjustable, to permit of compensating for changes in roll diameters. The two motor armatures are connected in parallel and supplied with power from an induction motor-driven flywheel set having three 2400-kw. generators with their armatures connected in parallel. It is believed that this is also the first installation to utilize three generators operating in parallel to supply power to a reversing drive. The whole equipment has proved extremely successful in operation.

The Bethlehem Steel Company, for its Sparrows Point (Maryland) plant, has just recently purchased a somewhat similar drive for a 46-inch reversing universal slabbing mill. The horizontal rolls of this mill will be driven by a 7000-h.p., double-unit, 50/100-r.p.m. reversing motor, similar to two other motors of the same rating which are already installed in this plant. This motor will develop a maximum torque of 2,700,000 pounds-feet. The rating of the vertical roll motor will be 2500 h.p., 100/300 r.p.m. Power will be supplied by a flywheel motor-generator set consisting of three 3000-kw. generators driven by a 6000-h.p. induction motor.

Among other reversing drives purchased during the year may be mentioned that for a 36-inch blooming mill at the Corrigan-McKinney Steel Company's Cleveland plant. The driving motor will be rated 4000 h.p. continuous, 60/140 r.p.m., 900 volts, and power will be furnished by a flywheel motor-generator set, induction motor driven.

A very interesting installation consists of two concatenated induction motor drives at the Calgary, Alberta, plant of the Manitoba Bridge and Iron Works. One of these units, which drives an 18-inch merchant mill, is rated 1200 h.p., 600/400 r.p.m. It consists of one 12-pole, 1200-h.p., 600-r.p.m., wound-rotor induction motor and one 6-pole, 400-h.p., 400-r.p.m., wound rotor induction motor. To operate the equipment at 600 r.p.m., the 12-pole unit alone is used, and after starting in the usual way with secondary resistance, its slip rings are short circuited and it operates as an ordinary 12-pole, 600-r.p.m. motor. To operate the drive at 400 r.p.m., the slip rings of the 12-pole motor are connected to the stator winding of the 6-pole motor and the drive is started with resistance in series between the slip rings of the 12-pole motor and the stator of the 6-pole motor. This resistance is short circuited by the accelerating contactors and the equipment then operates at a speed slightly below the synchronous speed of 400 r.p.m. Considering the synchronous speed condition, it is apparent that the 12-pole motor when operating at 400 r.p.m. with 60 cycles applied to its stator circuit will deliver 20 cycles at its slip rings. This 20 cycles applied to the stator of the 6-pole motor is the correct frequency to give a speed of 400 r.p.m. with zero frequency across the rings of the 6-pole motor. As load is applied, the speed of course drops somewhat and as it drops, the frequency applied to the stator of the 6-pole motor drops correspondingly, so that a condition of equilibrium is at all times maintained. On this particular drive a flywheel is used, and consequently both motors were made of the wound-rotor type, so that slip resistance could be inserted in the rotor circuit of the 6-pole motor when the drive is operated concatenated.

The second concatenated equipment at the Manitoba Bridge & Iron Works' plant drives a 10-inch merchant mill. It consists of one 8-pole, 700 h.p., 900-r.p.m., wound-rotor motor and one 2-pole, 140-h.p., 720-r.p.m., squirrel-cage motor, resulting in a unit rated 700 h.p., 900/720 r.p.m.

Several equipments for driving "Steckel" cold rolling mills are being built. In this type of mill the rolls which perform the actual work of reducing the metal are not driven, but the trip is pulled through them by means of a motor-driven reel on which it is wound. One of these reels is placed at each side of the main roll stand and the strip is passed back and forth through the rolls, being wound on one reel as it unwinds from the other. It is essential that a certain amount of tension be maintained in the strip between the roll stand and the reel from which it is being unwound. To obtain this result the motor on the unwinding reel is caused to act

as a generator, to give a braking action on the reel and thus produce tension in the strip. This tension must be accurately controlled and, therefore, regulators are used to maintain constant load on the machine which is acting as a generator.

The Acme Steel Company, Riverdale, Illinois, has installed a four-stand tandem cold strip mill, which involves some novel features. The mill rolls strip at a very much higher speed than is common in cold strip mill practice. Each of the four stands is individually driven by a 500-h.p., 400/800 r.p.m., 230-volt, direct-current motor. Power for these motors is supplied by an individual motor-generator set and advantage is taken of this fact to utilize the Ward Leonard method of starting the motors, eliminating magnetic control. The equipment is arranged so that the generator voltage may be quickly reduced to a low value to give a slow speed on all the motors for threading the metal through the mill, and then the speed may be quickly increased to the normal value by raising the voltage. The strip leaving the mill is wound on a motor-driven reel which is equipped with a regulator to maintain constant tension in the strip. The reel motor operates from the same bus as the main motors so that its speed automatically drops when that of the main motors is lowered to the threading speed.

The number of synchronous motors employed on main roll drives continues to increase. One brass and copper manufacturing company alone has purchased within the past year ten such motors for driving copper rolling mills.

It may be of interest to note that fabricated steel construction is now being very largely employed in main roll driving motors. The accompanying illustrations serve to bring out this point quite clearly. In a-c. motors the stator frames are fabricated from steel plate and rolled steel bars electrically welded together. The rotor is also usually fabricated from steel plates. The base is built up of structural sections and plates electrically welded together. In d-c. machines the magnet frame is constructed from steel slabs to shape, with the necessary bolting lugs and feet welded in place. The armature spiders are very largely fabricated from steel forgings, plates and bars. The bases are built up from structural shapes and plates welded together. The Illinois Steel Company has just recently put into operation

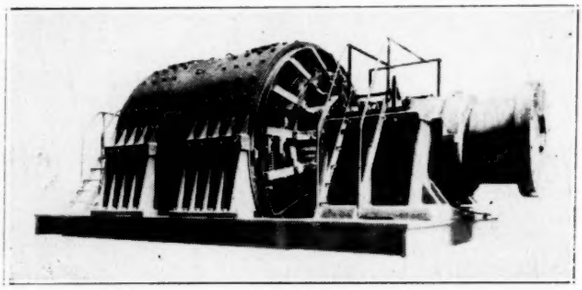

Fig. 3. 7000-H.P., D.C. Double Reversing Mill Motor; 2 Type MCF-16, 3500-H.P., 50/120-R.P.M., 750-Volt Units on Common Base and Shaft at Illinois Steel Company, South Chicago, Ill.

at its South Chicago Works three large direct-current motors which are among the largest direct-current machines yet built with fabricated armature spiders. One of these is rated 6000 h.p., 75/140 r.p.m. The other two are reversing units—one rated 3500 h.p., 50/120 r.p.m. and the other 7000 h.p., 50/120 r.p.m. An illustration shows the partially completed fabricated spider for one of these units. This increasing use of fabricated construction in electrical apparatus is of especial interest to the steel industry, for it means that rolled steel products are used to build motors for rolling steel.

A. I. & S. E. E. Meeting

CLEVELAND SECTION

A. L. REICHERT, Chairman — **J. E. WOOD, Secretary**

THURSDAY, FEBRUARY 27, 1930

BALL ROOM — **STATLER HOTEL** — **CLEVELAND, OHIO**

DINNER 6:30 P. M. — **8:00 P. M. LECTURE**

"AN EVENING IN THE RESEARCH LABORATORIES OF THE GENERAL ELECTRIC COMPANY"

By L. A. HAWKINS, Executive Engineer Research Laboratories

The Development of the Cathode Ray
Photoelectric Cell Applications
Thyratron Control
High Frequency Therapy
Power Transmission by the use of Vacuum Tubes
The Elimination of the Human Factor depending on the senses of sight and hearing
New Light and Sound Devices to relieve physical drudgery
The Use of Electric Therapy in Maintaining Health and Eliminating Disease.

ELECTRICALLY OPERATED CRANE STATISTICS, 1929

ELECTRIC OVERHEAD TRAVELING CRANES, CHARGERS, HOISTS, PURCHASED BY IRON AND STEEL INDUSTRY

Table No. 1
Trend of Bearing Construction

Number of Cranes Purchased	Cranes Tonnage	Completely Equipped with Anti-friction Bearings	Partially Equipped	Sleeve Bronze Bearings, Etc.
2	1	2	...	...
6	2	6	...	...
5	2½	3	2	...
11	3	6	...	5
4	3½	4	...	...
63	5	24	10	29
4	6	...	...	4
24	7½	12	2	10
1	8	1	...	...
128	10	61	37	30
1	11	...	...	1
1	11½	1	...	...
1	12	...	...	1
1	12½	1	...	...
100	15	67	16	17
29	20	11	6	12
22	25	8	10	4
15	30	7	4	4
10	35	8	1	1
22	40	13	...	9
20	50	9	3	8
1	55	...	...	1
10	60	3	4	3
1	67½	...	...	1
9	75	6	1	2
1	90	...	...	1
11	100	1	7	3
2	115	...	...	2
3	125	1	1	1
2	135	...	2	...
8	150	2	1	5
1	175	...	...	1
11	200	1	8	2
1	225	1	...	...
8	250	3	2	3
1	300	...	1	...
540		262	118	160

Table No. 2

Type of Cranes Purchased	Total
Standard Cranes	303
Standard Cranes with Magnet and Bucket	2
Standard Cranes with Magnet	19
Standard Crane with Sta. Hoist	4
Double Hook, Double Drum, Double Trolley	47
Ladle Cranes	37
Cupola Charger	1
High Type Charger	1
Floor Charger—Low Type	2
Open Hearth Charger	8
Copper Charger	2
Soaking Pit Cranes	13
Soaking Pit—Low Type	3
Stripper	8
Tongs	4
Bucket	22
Gantry	5
Gantry—One Leg	1
Skull Cracker	1
Trailer Trolley	2
Pillar	1
Unclassified	54
Total	540

COMPILATION

Total Cranes purchased, 540.

Cranes completely equipped with anti-friction bearings	262
Cranes partially equipped with anti-friction bearings	118
Cranes equipped with sleeve-bronze bearings, etc,	160
Total	540
Cranes equipped with Spur Gears	416
Worm gear reductions	34
Spur and Worm Gears	33
Spur and Herringbone Gears	57
Total	540

2318 Motors furnished. Total Crane Tonnage purchased, 16,800. Approximate value, $10,000,000.

MAIN ROLL DRIVE STATISTICS—1929

MAIN DRIVE MOTORS SOLD 1929

ALL MOTORS 300 H.P. OR OVER

Companies	Total H.P. Purchased 1929
U. S. Steel Corporation	88600
Great Lakes Steel Corporation	49600
Youngstown Sheet & Tube Co.	36350
Bethlehem Steel Corporation	35800
A. M. Byers Company	18300
Gulf States Steel Co.	11000
Wheeling Steel Corporation	10000
Interstate Iron & Steel Co.	9800
West Leechburg Steel Co.	7800
Acme Steel Company	7300
American Rolling Mills Company	6900
Timken Steel & Tube Co.	5700
Newton Steel Company	6000
American Tube & Stamping Co.	4900
Pittsburgh Steel Company	4800
Inland Steel Company	4550
Corrigan-McKinney Steel Co.	4000
Carpenter Steel Company	5300
All Others (33 Companies)	44600
Total	361300

Total Motors Purchased In Iron and Steel Industry	H.P. Per Motor
9	300
15	350
23	400
40	500
21	600
5	700
6	750
13	800
2	900
18	1000
7	1200
1	1400
13	1500
4	1600
1	1800
29	2000
2	2200
10	2500
8	3000
4	3500
6	4000
4	5000
1	5600
2	6000
4	7000
2	8000
250	

VOLTAGES USED ON MAIN ROLL DRIVE MOTORS

D.C. Current	
13	230V.
6	240V.
20	250V.
1	350V.
2	500V.
1	578V.
90	600V.
5	650V.
8	700V.
1	770V.
1	800V.
1	850V.
3	900V.

A.C. Current	
2	220V.
6	440V.
36	2200V.
17	2300V.
1	4000V.
12	4600V.
23	6600V.
1	11000V.

COMPILATION

152 Main Roll Drive Motors over 300 H.P. used D.C. Current.

98 Main Roll Drive Motors over 300 H.P. used A.C. Current.
Of the 98 A.C. Motors,—76 were 60 cycles and 22 were 25 cycle

Speed—104 were Constant speed.

146 were Adjustable Speed Motors—Speed range, 93 were 2 to 1 or less, 53 were 3 to 1 or less.

METHOD OF DRIVE

184 Main Roll Drive Motors over 300 H.P. were Geared.

65 Main Roll Drive Motors over 300 H.P. were Direct.

1 Main Roll Drive Motors over 300 H.P. were Coupled.

Electricity's Contribution To The Iron & Steel Industry

Main Roll Drives in the United States and Canada

With this issue of the Iron and Steel Engineer we are again publishing a tabulated list of main roll drives installed in the Iron and Steel Industry as of December 31st, 1929.

In the past this information has been published in cataloged forms by the different manufacturing companies, each catalog including only those installations involving their own equipment. It has always been difficult for the electrical engineer in the steel industry to properly analyze the information included in these various publications because of the wide differences in the method of tabulation used by the various manufacturers.

In this tabulation the Iron and Steel Engineer is presenting the information in a uniform manner showing the Horse Power, R.P.M., Voltage, Cycles, Type and Size of mill, Method of drive, date of purchase, name of plant and location. Also a classified list which gives the types of installations in Blooming Mills, Plate Mills, Rail and Structural Mills, Bar and Billet Mills, Sheet Bar and Skelp Mills, Sheet and Tin Plate Plants, Rod Mills, Piercing Mills, Tube Mills, Strip and Hoop Mills, Merchant Mills, Wire Mills, Wheel Mills, Aluminum Brass, Copper and Non-Ferrous Mills; also the Multi-Speed Drives, A.C. Speed sets, Direct Current Adjustable Speed Drives and Reversing Blooming Mill Drives are tabulated.

This data has been prepared with the view of providing the Executives, and Engineers in the Iron and Steel Industry an authority, and a reference manual for their guidance in future installations and extensions.

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1	300	175–300	230	d.c.	Tube Mill	Direct	1927	Babcock & Wilcox.	Beaver Falls, Pa.	W
2	300	175–300	230	d.c.	Tube Mill	Direct	1927	Babcock & Wilcox.	Beaver Falls, Pa.	W
3	300	175–225	600	d.c.	10″ Merchant Mill	Direct	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
4	300–300	187.5–112.5	2200	25	12″ Merchant Mill	Direct	1914	Bethlehem Steel Co.	Lebanon, Pa.	GE
5	300	225–450	230	d.c.	Merchant Mill	Direct	1928	Barton Spider Web. Co.	Chicago, Ill.	W
6	300	250	440	25	Sheet Mill	Geared	1910	Simonds Mfg. Co.	Lockport, N. Y.	GE
7	300	250	440	25	Cogging Mill	Geared	1910	Simonds Mfg. Co.	Lockport, N .Y.	GE
8	300	250–750	250	d.c.	12″ Hoop Mill	Geared	1928	Carnegie Steel Co.	Youngstown, O.	W
9	300	250–750	250	d.c.	10″ Merchant Mill	Geared	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
10	300	257	2200	60	Roll		1917	Tennessee Coal, Iron & R. R. Co.	Bessemer, Ala.	CW
11	300	267–800	230	d.c.	Hot Merchant Mill	Geared	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
12	300	267–800	230	d.c.	Hot Merchant Mill	Geared	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
13	300	267–800	230	d.c.	Hot Merchant Mill	Geared	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
14	300	290	2200	25	Brass Mill	Geared	1920	American Brass Co.	Buffalo, N. Y.	W
15	300	290	2200	25	Brass Mill	Geared	1920	American Brass Co.	Buffalo, N. Y.	W
16	300	290	2200	25	Brass Mill	Geared	1920	American Brass Co.	Buffalo, N. Y.	W
17	300	290	2200	25	Brass Mill	Geared	1920	American Brass Co.	Buffalo, N. Y.	W
18	300	300	230	d.c.	Cold Rolling Mill	Geared	1914	Trumbull Steel Co.	Warren, Ohio	W
19	300–300	300–180	2200	25	10″ Merchant Mill	Direct	1914	Bethlehem Steel Co.	Lebanon, Pa.	GE
20	300	300	2200	60	Piercing Mill	Coupled	1918	Pittsburgh Steel Products Co.	Allenport, Pa.	CW
21	300	300–600	230	d.c.	20″ x 30″ Brass Mill	Geared	1920	West Virginia Metal Products Co.	Fairmont, W. Va.	W
22	300	300–600	230	d.c.	20″ x 30″ Brass Mill	Geared	1920	West Virginia Metal Products Co.	Fairmont, W. Va.	W
23	300	200–600	230	d.c.	22″ x 36″ Brass Mill	Geared	1920	West Virginia Metal Products Co.	Fairmont, W. Va.	W
24	300	300–600	230	d.c.	22″ x 36″ Brass Mill	Geared	1920	West Virginia Metal Products Co.	Fairmont, W. Va.	W
25	300	300	230	d.c.	Cold Rolling Mill	Geared	1920	Alan Wood Iron & Steel Co.	Conshohocken, Pa.	W
26	300	300	2200	60	26″ Cold Mill	Geared	1921	International Nickel Co.	Huntington, W. Va.	AC
27	300	300	2200	60	Piercing Mill	Coupled	1917	Pittsburgh Steel Products Co.	Monessen, Pa.	CW
28	300	300	2200	60	Roll		1917	Tennessee Coal, Iron & R. R. Co.	Bessemer, Ala.	CW
29	300	300	230	d.c.	Steel Mill	Geared	1925	National Tube Co.	Lorain, Ohio	AC
30	300	300	230	d.c.	Steel Mill	Geared	1925	National Tube Co.	Lorain, Ohio	AC
31	300	300	230	d.c.	Steel Mill	Geared	1925	National Tube Co.	Lorain, Ohio	AC
32	300	300–650	250	d.c.	10″ Rod Mill	Direct	1927	Washburn Wire Co.	Phillipsdale, R. I.	W
33	300	300–650	250	d.c.	10″ Rod Mill	Direct	1927	Washburn Wire Co.	Phillipsdale, R. I.	W
34	300–300	315–630	230	d.c.	8″ Merchant Mill	Direct	1919	Donner Steel Co.	Buffalo, N. Y.	GE
35	300	325–650	220	d.c.	Sheet Mill		1919	Aluminum Co. of America	New Kensington, Pa.	AC
36	300–225–165	435–225–165	6600	25	12″ Hot Strip Mill	Geared	1920	Illinois Steel Co.	Gary, Ind.	GE
37	300	340	2200	60	Cold Rolling Mill	Geared	1921	Newton Steel Co.	Newton Falls, Ohio	W
38	300	345–500	500	d.c.	Tube Rolling Mill	Geared	1912	Pittsburgh Steel Prod. Co.	Monessen, Pa.	W
39	300	350	2200	60	Seamless Tube Mill	Geared	1915	Timken Roller Bearing Co.	Canton, Ohio	W
40	300	350	2200	60	Cold Rolling Mill	Geared	1915	Mansfield Sheet & Tin Plate Co.	Mansfield, Ohio	W
41	300	350	2200	60	Tube Rolling Mill	Geared	1919	Timken Roller Bearing Co.	Canton, Ohio	W
42	300	350–450	230	d.c.	Lap Welding Mill	Coupled	1923	Gary Tube Co.	Gary, Ind.	AC
43	300	350–500	230	d.c.	Merchant Mill	Coupled	1915	Buffalo Bolt Co.	N. Tonawanda, N. Y.	CW
44	300	352	2200	60	Cold Roll Mill	Direct	1923	Sharon Steel Hoop Co.	Youngstown, Ohio	W
45	300	353	2200	60	Cold Rolls	Geared	1923	Reeves Mfg. Co.	Dover, Ohio	AC
46	300	360	2200	60	Sheet Mill—Cold Rolls	Geared	1922	U. Alloy Steel Corp., Berger Div.	Canton, Ohio	GE
47	300	360	2300	60	Cold Rolls	Geared	1923	Ashtabula Steel Co.	Ashtabula, Ohio	GE
48	300	360	2200	60	10″ Strip Mill	Coupled	1923	Pittsburgh Steel Co	Glassport, Pa.	CW
49	300	363	220	25	Cold Rolling Mill	Geared	1920	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
50	300	365	2200	25	8″ Merchant Mill	Direct	1909	Bethlehem Steel Co.	Johnstown, Pa.	W
51	300	375	2200	25	Wire Mill	Geared	1910	Bethlehem Steel Co.	Johnstown, Pa.	GE
52	300	375	2200	25	Wire Mill	Geared	1910	Bethlehem Steel Co.	Johnstown, Pa.	GE
53	300	375	2200	25	Wire Mill	Geared	1910	Bethlehem Steel Co.	Johnstown, Pa.	GE
54	300	375	2200	25	Wire Mill	Geared	1910	Bethlehem Steel Co.	Johnstown, Pa	GE
55	300	375	2200	25	Wire Mill	Belt	1915	American Steel & Wire Co.	Cleveland, Ohio	GE
56	300	375	2200	25	Wire Mill	Belt	1915	American Steel & Wire Co.	Cleveland, Ohio	GE
57	300	375	2200	25	Wire Mill	Belt	1915	American Steel & Wire Co.	Cleveland, Ohio	GE
58	300	375	2200	25	Wire Mill	Belt	1915	American Steel & Wire Co.	Cleveland, Ohio	GE
59	300	375	2200	25	Wire Mill	Belt	1915	American Steel & Wire Co.	Cleveland, Ohio	GE
60	300	375	2200	25	10″ Bar Mill	Geared	1919	Hammond Steel Co.	Solvay, N. Y.	GE
61	300	375	2200	25		Rope		Bethlehem Steel Co.	Johnstown, Pa.	AC
62	300	375	2200	25		Rope		Bethlehem Steel Co.	Johnstown, Pa.	AC

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
63	300	375	2200	25	Bar Mill	Coupled		Bethlehem Steel Co.	Johnstown, Pa.	AC
64	300	375	2200	25	10″ Rod Mill	Direct	1926	U. S. Aluminum Co.	Massena, N. Y.	GE
65	300	375	2200	25	10″ Rod Mill	Direct	1926	U. S. Aluminum Co.	Massena, N. Y.	GE
66	300	400–800	550	60	14″ Bar Mill	Geared	1926	Ludlum Steel Co.	Watervliet, N. Y.	GE
67	300–300	400–800	230	d.c.	Cold Strip Mill	Geared	1913	Weirton Steel Co.	Weirton, W. Va.	GE
68	300–300	400–800	230	d.c.	Cold Strip Mill	Geared	1913	Weirton Steel Co.	Weirton, W. Va.	GE
69	300–300	400	230	d.c.	Cold Strip Mill	Geared	1913	Weirton Steel Co.	Weirton, W. Va.	GE
70	300–300	400–800	230	d.c.	Cold Strip Mill	Geared	1913	Weirton Steel Co.	Weirton, W. Va.	GE
71	300–300	400–800	230	d.c.	20″ x 24″ Cold Strip Mill	Geared	1919	Trumbull Steel Co.	Warren, Ohio	GE
72	300–300	400–800	230	d.c.	20″ x 24″ Cold Strip Mill	Geared	1919	Trumbull Steel Co.	Warren, Ohio	GE
73	300–300	400–800	230	d.c.	20″ x 24″ Cold Strip Mill	Geared	1919	Trumbull Steel Co.	Warren, Ohio	GE
74	300 300	400–800	230	d.c.	20″ x 24″ Cold Strip Mill	Geared	1919	Trumbull Steel Co.	Warren, Ohio	GE
75	300	400–800	230	d.c.	Edging Rolls	Geared	1926	Trumbull Steel Co.	Warren, Ohio	GE
76	300–400	400–800	230	d.c.	14″-4-High Tandem copper Mill	Geared	1927	Rome Brass & Copper Co.	Rome, N. Y.	GE
77	300	435	2200	60	18″ Copper Mill	Geared	1920	West Virginia Metal Products Co.	Fairmont, W. Va.	W
78	300	435	2200	60	24″ x 48″ Copper Mill	Geared	1920	West Virginia Metal Products Co.	Fairmont, W. Va.	W
79	300	435	230	d.c.	12″ Pipe Mill	Coupled	1910	A. M. Byers Co.	Pittsburgh, Pa.	CW
80	300	435	230	d.c.	12″ Pipe Mill	Coupled	1910	A. M. Byers Co.	Pittsburgh, Pa.	CW
81	300	440	2200	60	Roughing Mill	Coupled	1919	Ft. Wayne Rolling Mill Co.	Ft. Wayne, Ind.	AC
82	300	440	2200	60	Cold Roll Mill	Geared	1924	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
83	300	440	2200	60	Cold Roll Mill	Geared	1924	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
84	300	450	440	60	Wire Mill	Geared	1914	American Steel & Wire Co.	Joliet, Ill.	AC
85	300	450	440	60	Wire Mill		1914	American Steel & Wire Co.	Joliet, Ill.	AC
86	300	450–750	230	d.c.	Wheel Mill	Geared	1913	Bethlehem Steel Co.	Johnstown, Pa.	AC
87	300	450–750	230	d.c.	Wheel Mill	Geared	1913	Bethlehem Steel Co.	Johnstown, Pa.	AC
88	300	450	230	d.c.	Merchant Bar Mill	Geared	1916	Carbon Steel Co.	Pittsburgh, Pa.	W
89	300	450	2200	60	8″ Merchant Mill		1917	Columbia Steel Corp.	Los Angeles, Cal.	GE
90	300	450	550	60	Bar Mill	Coupled	1921	National Conduit & Cable Co.	Hast. on Hudson,N.Y	AC
91	300	450	220	30	Lap Welding Rolls	Geared	1923	Spang Chalfant Co.	Etna, Pa.	GE
92	300	450	2200	60	Cross Rolls in Tube Mill	Geared	1924	Standard Seamless Tube Co.	Economy, Pa.	GE
93	300	450	2200	60	Cross Rolls in Tube Mill	Geared	1924	Standard Seamless Tube Co.	Economy, Pa.	GE
94	300	450	440	60	Copper & Brass Rolling Mill	Geared	1927	New Haven Copper Co.	Seymour, Conn.	EM
95	300	450–1200	650	d.c.	Cold Strip Al.	Geared	1929	U. S. Aluminum Co.	Niagara Falls, N. Y.	GE
96	300	485	2200	25	Cold Rolling Mill	Direct	1916	Halcomb Steel Co.	Syracuse, N. Y	W
97	300–300	500–300	2200	25	9″ Merchant Mill	Direct	1914	Bethlehem Steel Co.	Lebanon, Pa.	GE
98	300–300	500–300	2200	25	8″ Merchant Mill	Direct	1914	Bethlehem Steel Co.	Lebanon, Pa.	GE
99	300	500	220	25	Tube Mill	Geared	1915	Republic Iron & Steel Co.	Youngstown, Ohio	GE
100	300	500	2080	25	9″ Merchant Mill	Geared	1916	Halcomb Steel Co.	Syracuse, N. Y.	GE
101	300	500	550	25	Tube Mill	Geared	1917	Baltimore Tube Co.	Baltimore, Md.	W
102	300	500	230	d.c.	Welding Rolls, pipe mill	Geared	1925	Central Tube Co.	Economy, Pa.	GE
103	300	500	550	25	Tube Mill	Geared	1917	Baltimore Tube Co.	Baltimore, Md.	W
104	300	500	220	25		Geared	1917	Republic Iron & Steel Co.	Youngstown, Ohio	GE
105	300	500		60	Brass Mill	Coupled	1917	British American Metals Co.	Plainfield, N. J.	CW
106	300	500	220	25	Slitting Mill	Geared	1928	Kalman Steel Co.	Blasdell, N. Y.	GE
107	300	505	2200	60	20″ Sheet Strip Jobbing Mill	Geared	1926	Indiana Rolling Mill Co.	New Castle, Ind.	W
108	300	505	2200	60	20″ Sheet Strip Jobbing Mill	Geared	1926	Indiana Rolling Mill Co.	New Castle, Ind.	W
109	300	514	440	60	Tube Mill	Geared	1914	Detroit Seamless Tube Co.	Detroit, Mich.	GE
110	300	514	220	60	Tube Mill	Geared	1914	Detroit Seamless Tube Co.	Detroit, Mich.	GE
111	300	514	440	60	Brass Mill	Geared	1915	Chase Metal Works	Waterbury, Conn.	GE
112	300	514	2200	60	Bar Mill	Geared	1915	C. G. Hussey	Pittsburgh, Pa.	AC
113	300	514	220	60	Tube Mill	Geared	1918	Detroit Seamless Tube Co.	Detroit, Mich.	AC
114	300	514	550	60	Brass Sheet Mill	Geared	1919	American Brass Co.	Hastings, N. Y.	GE
115	300	514	550	60	14″ Cold Strip Mill	Geared	1922	Wallingford Steel Co.	Wallingford, Conn.	GE
116	300	514	440	60	Copper & Brass Rolling Mill	Geared	1924	Dallas Brass & Copper Co.	Chicago, Ill.	EM
117	300	514	440	60	Copper & Brass Rolling Mill	Geared	1924	Dallas Brass & Copper Co.	Chicago, Ill.	EM
118	300	514	440	60	Copper & Brass Rolling Mill	Geared	1924	Dallas Brass & Copper Co.	Chicago, Ill.	EM
119	300	514	440	60	Copper & Brass Rolling Mill	Geared	1928	Dallas Brass & Copper Co.	Chicago, Ill.	EM
120	300	575	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
121	300	575	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
122	300	575	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
123	300	575	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
124	300	575	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
125	300	575	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
126	300	575	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
127	300	575	2200	60	Cold Rolling Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
128	300	575	2200	60	Cold Rolling Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
129	300	575	2200	60	Cold Rolling Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
130	300	575	2200	60	Cold Rolling Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
131	300	575	2200	60	Rod Mill	Geared	1922	Standard Underground Cable Co.	Perth Amboy, N. J	W
132	300	585	440	60	18″ Copper Mill	Chain	1916	Standard Underground Cable Co.	Perth Amboy, N. J.	W
133	300–150	590–292	2200	60	9″ Merchant (Fin.) Mill	Geared	1920	Cleveland Hardware Co.	Cleveland, Ohio	W
134	300	600	2200	60	Brass Mill	Geared	1915	Chase Metal Works	Waterbury, Conn.	GE
135	300	600	2200	60	14″ Mill		1915	Cleveland Brass & Copper Co.	Cleveland, Ohio	AC
136	300	600	2200	60	18″ Mill		1915	Cleveland Brass & Copper Co.	Cleveland, Ohio	AC
137	300 300–150	600–400 300	440	60	Bar Mill	Chain	1916	Vulcan Crucible Steel Co.	Aliquippa, Pa.	GE
138	300	600	2300	60	12″ Billet Mill	Geared	1916	Tennessee Coal, Iron & R. R. Co.	Bessemer, Ala.	GE
139	300	600	2200	60	Merchant Mill	Geared	1916	Tennessee Coal, Iron & R. R. Co.	Bessemer, Ala.	GE
140	300	600	2300	60	Wire Mill	Geared	1917	American Steel & Wire Co.	Waukegan, Ill.	GE
141	300	600	440	60	Brass Mill	Geared	1919	Bristol Brass Co.	Bristol, Conn.	GE
142	300	600	2200	60	10″ Hot Strip Mill	Direct	1919	Superior Steel Co.	Carnegie, Pa.	GE
143	300	600	440	60	Brass Mill		1920	Detroit Copper & Brass Co.	Detroit, Mich.	AC
144	300	600	440	60			1920	Detroit Copper & Brass Co.	Detroit, Mich.	AC
145	300	600	440	60			1920	Detroit Copper & Brass Co.	Detroit, Mich.	AC
146	300	600	2200	60	Tube Mill	Geared	1922	Weldless Tube Co.	Wooster, Ohio	GE
147	300	600	2200	60	Tube Mill	Geared	1922	Weldless Tube Co.	Wooster, Ohio	GE
148	300	600	2200	60	Cold Sheet Mill Rolls	Geared	1923	Falcon Steel Co.	Niles, Ohio	GE
149	300	600	550	60		Geared		National Conduit & Cable Co.	Hast. on Hudson,N.Y	AC
150	300	600	550	60		Geared		National Conduit & Cable Co.	Hast. on Hudson,N.Y	AC
151	300	600	440	60	Copper Strip Mill	Geared	1925	Detroit Copper & Brass Co.	Detroit, Mich.	CW
152	300	600–1200	600	d.c.	14″ Hot Strip	Geared	1929	Superior Steel Co.	Carnegie, Pa.	W
153	300	600–1200	600	d.c.	14″ Hot Strip	Geared	1929	Superior Steel Co.	Carnegie, Pa.	W
154	300	600	220	60	Cold Sheet	Geared	1929	American Rolling Mill Co.	Butler, Pa.	GE
155	300	600	220	60	Cold Sheet	Geared	1929	American Rolling Mill Co.	Butler, Pa.	GE
156	300	600	220	60	Cold Sheet	Geared	1929	American Rolling Mill Co.	Butler, Pa.	GE
157	300	600	2200	60	Cold Sheet	Geared	1929	Empire Steel Co.	Niles, O.	GE
158	300	720	440	60	14″ Merchant Mill	Geared	1913	Union Rolling Mills Co.	Cleveland, Ohio	GE
159	300	720	2200	60	Wire Rod Mill	Geared	1917	Rome Wire Co.	Rome, N. Y.	AC
160	300	720	440	60	12″ Merchant Mill	Geared	1919	The Stanley Works	New Britain, Conn.	GE
161	300	720	440	60	Bar Mill	Geared	1920	Hoskins Mfg. Co.	Detroit, Mich.	AC
162	300	720	4150	60	Piercing Mill	Geared	1927	Public Service Prod. Co.	Plainfield, N. J.	GE
163	300	750	3000	50	Merchant Mill	Geared	1923	Cons. Rolling Mills Co.	Mexico City, Mex.	GE
164	300	750	2200	25	10″ Bar Mill	Geared	1923	Bethlehem Steel Co.	Lebanon, Pa.	GE
165	*300	900	2200	60	Rail Re-rolling	Geared	1929	Bancroft Martin	Portland, Me.	GE

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgr By
166	300	1200	230	d.c.	28" Straightener	Geared	1929	Bethlehem Steel Co.	Bethlehem, Pa.	CW
167	300-200	920-360	220	d.c.	Merchant Mill	Direct	1919	Bethlehem Steel Co.	Lackawanna, N. Y	GE
168	320	400-800	230	d.c.	Cold Strip Drive	Geared	1926	International Nickle Co.	Huntington, W. Va	AC
169	325	360	2200	60	Bar Mill	Geared	1915	Heppenstall Forge & Knife Co.	Pittsburgh, Pa.	GE
170	325	600	2300	60	Wire Mill	Geared	1917	American Steel & Wire Co.	Waukegan, Ill.	GE
171	340	85	230	d.c.	Welding Rolls	Coupled	1906	National Tube Co.	McKeesport, Pa.	CW
172	350	125	6600	25	12" Bar Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
173	350	145	2200	60	Cold Rolling Mill	Rope	1912	Central Steel Co.	Massillon, Ohio	W
174	350-350	150-100	6600	25	12" Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
175	350	200-300	250	d.c.	9" Merchant Mill	Direct	1919	National Farming Mach. Co., Ltd	Montmagny, P. Q.	W
176	350-350	240-480	240	d.c.	10" Merchant Mill	Direct	1923	LaClede Steel Co.	St. Louis, Mo.	GE
177	350	242	2200	25	Cold Strip Mill	Geared	1922	Otis Steel Co.	Cleveland, Ohio	W
178	350	250	2200	25	10" Rod Mill	Direct	1911	Dillworth Porter Co.	Pittsburgh, Pa.	GE
179	350	250	440	25	Brass Mill	Geared	1921	Harrison Radiator Corp.	Lockport, N. Y	GE
180	350	250-325	230	d.c.	9" Merchant Mill	Direct	1921	Wayne Steel Co.	Erie, Pa.	W
181	350-350	275-470	375	d.c.	Reversing Copper Mill	Geared	1920	American Brass Co.	Buffalo, N. Y.	GE
182	350-350	275-470	375	d.c.	Reversing Copper Mill	Geared	1920	American Brass Co.	Buffalo, N. Y	GE
183	350-350	275-470	375	d.c.	Reversing Copper Mill	Geared	1920	American Brass Co.	Kenosha, Wis.	GE
184	350-350	275-470	375	d.c.	Reversing Copper Mill	Geared	1922	Taunton-New Bedford Copper Co.	Taunton, Mass	GE
185	350	275-550	230	d.c.	Tube Reeling Mill	Geared	1928	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
186	350	275-550	230	d.c.	Tube Reeling Mill	Geared	1928	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
187	350-235	300-200	6600	25	Merchant Mill	Geared	1920	Illinois Steel Co.	Gary, Ind.	GE
188	350	300	230	d.c.	Wire Draw Bench	Coupled	1908	Pittsburgh Steel Co.	Monessen, Pa.	CW
189	350	300	230	d.c.	Wire Draw Bench	Coupled	1908	Pittsburgh Steel Co.	Monessen, Pa.	CW
190	350	300	230	d.c.	Wi Draw Bench	Coupled	1908	Pittsburgh Steel Co.	Monessen, Pa.	CW
191	350	300	230	d.c.	Wire Draw Bench	Coupled	1911	Pittsburgh Steel Co.	Monessen, Pa.	CW
192	350	345	440	60	Sheet Mill	Geared	1917	Universal Steel Co.	Bridgeville, Pa.	W
193	350	320	2200	60	21" Plate (Cold Roll.) Mill	Geared	1910	Oliver Iron & Steel Co.	Wilson Station, Pa.	W
194	350	350	2200	60	Seamless Tube Mill	Geared	1927	Timken Roller Bearing Co.	Canton, Ohio	W
195	350-350	360-240	240	d.c.	10" Merchant Mill	Direct	1911	LaClede Steel Co.	St. Louis, Mo.	GE
196	350	360	2200	60	Sheet Mill—Cold Rolls	Geared	1919	Falcon Steel Co.	Niles, Ohio	GE
197	350-350	360-450	230	d.c.	Welding Rolls	Direct	1920	National Tube Co.	Lorain, Ohio	GE
198	350-350	360-450	230	d.c.	Welding Rolls	Direct	1920	National Tube Co.	Lorain, Ohio	GE
199	350-350	360-240	440	60	Bar Mill	Coupled	1921	Simmons Mfg. Co.	Kenosha, Wis.	AC
200	350-350	375-214	6600	25	9" Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
201	350	400	2200	60	Wire Rod Mill	Geared	1918	Taunton-New Bedford Copper Co.	New Bedford, Mass.	AC
202	350	400	2200	60	Wire Rod Mill	Coupled	1918	Taunton-New Bedford Copper Co.	New Bedford, Mass.	AC
203	350	400	2200	60	Wire Rod Mill	Coupled	1918	Taunton-New Bedford Copper Co.	New Bedford, Mass.	AC
204	350	400-600	230	d.c.	Hot Mill	Geared	1913	Bethlehem Steel Co.	Lackawanna, N. Y.	CW
205	350	400-800	230	d.c.	8" Merchant Mill	Direct	1928	Laclede Steel Co.	Alton, Ill.	GE
206	350	400-800	600	d.c.	10" Merchant	Geared	1929	Inland Steel Co.	Ind. Harbor, Ind.	GE
207	350	400-800	600	d.c.	10" Merchant	Geared	1929	Inland Steel Co.	Ind. Harbor, Ind.	GE
208	350	400-800	600	d.c.	10" Merchant	Geared	1929	Inland Steel Co.	Ind. Harbor, Ind.	GE
209	350	400-800	600	d.c.	10" Merchant	Geared	1929	Inland Steel Co.	Ind. Harbor, Ind.	GE
210	350	400-800	600	d.c.	10" Merchant	Geared	1929	Inland Steel Co.	Ind. Harbor, Ind.	GE
211	350	400-800	600	d.c.	10" Merchant	Geared	1929	Inland Steel Co.	Ind. Harbor, Ind.	GE
212	350	400-800	600	d.c.	10" Merchant	Geared	1929	Inland Steel Co.	Ind. Harbor, Ind.	GE
213	350	400-800	600	d.c.	10" Merchant	Geared	1929	Inland Steel Co.	Ind. Harbor, Ind.	GE
214	350	400-700	600	d.c.	28" Strip	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
215	350	420	2200	50	Merchant Mill	Geared	1919	Southern California Iron & Steel Co	Los Angeles, Cal.	W
216	350	435	2200	60	Pipe Welding Rolls	Geared	1919	Wheeling Steel Corporation	Steubenville, Ohio	W
217	350	450-600	230	d.c.	Band Mill	Direct	1926	Sharon Steel Hoop Co.	Sharon, Pa.	CW
218	350	450	2200	60	Tube Rolling Mill	Geared	1925	Pittsburgh Steel Co.	Allenport, Pa.	EM
219	350	450	2300	60	Tube Mill	Direct	1929	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
220	350	450	2300	60	Tube Mill	Direct	1929	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
221	350	450	2300	60	Tube Mill	Direct	1929	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
222	350	480	2200	25	12" Roughing Mill	Geared	1923	Halcomb Steel Co.	Syracuse, N. Y.	W
223	350	485	2200	25	Cont. Sheet Mill	Geared	1926	American Sheet & Tin Plate Co.	Gary, Ind.	AC
224	350	485	2200	25	Cont. Sheet Mill	Geared	1926	American Sheet & Tin Plate Co.	Gary, Ind.	AC
225	350	490	6400	25	24" Flat Edging Mill	Geared	1916	American Steel & Wire Co.	Cleveland, Ohio	W
226	350	490	2200	25	Brass Mill	Geared	1920	American Brass Co.	Buffalo, N. Y.	W
227	350	490	2200	25	Brass Mill	Geared	1920	American Brass Co.	Buffalo, N. Y.	W
228	350	492	6600	25	Tube Reeling	Geared	1929	National Tube Co.	McKeesport, Pa.	W
229	350	492	6600	25	Tube	Geared	1929	National Tube Co.	McKeesport, Pa.	W
230	350	492	6600	25	Tube	Geared	1929	National Tube Co.	McKeesport, Pa.	W
231	350	500	230	d.c.	16" Cont. Skelp Mill	Geared	1924	Gary Tube Co.	Gary, Ind.	AC
232	350	514	2200	60	Tube Mill	Geared	1928	Globe Steel Tube Co.	Milwaukee, Wis.	AC
233	350	514	2200	60	Tube Mill	Geared	1928	Globe Steel Tube Co.	Milwaukee, Wis.	AC
234	350	524-850	230	d.c.	18" Blading Mill	Geared	1924	W. E. & M. Co.	South Phila. Works	W
235	350	580	2200	60	Merchant Mill	Geared	1916	Copper Clad Steel Co.	Pittsburgh, Pa.	W
236	350	590	2200	60	12" Merchant Mill	Geared	1918	Indianapolis & Eastern TractionCo.	Indianapolis, Ind.	W
237	350	600	2200	60	Bar Mill	Belted	1920	Joslyn Mfg. Co.	Chicago, Ill.	AC
238	350	700	2200	60	Merchant Mill	Geared	1918	Kilby Car & Foundry Co.	Anniston, Ala.	W
239	350	720	2200	60	Tube Mill	Geared	1928	Globe Steel Tube Co.	Milwaukee, Wis.	AC
240	350	720	2200	60	Tube Mill	Geared	1928	Globe Steel Tube Co.	Milwaukee, Wis.	AC
241	360	300-425	230	d.c.	8" Rod Mill	Direct	1915	United Alloy Steel Corporation	Canton, Ohio	W
242	360	300-600	230	d.c.	Rod Mill	Direct	1922	United Alloy Steel Corporation	Canton, Ohio	W
243	360	350-500	230	d.c.	7" Rod Mill	Direct	1915	United Alloy Steel Corporation	Canton, Ohio	W
244	375	430-860	230	d.c.	20" Cold Rolling Mill	Geared	1922	Otis Steel Company	Cleveland, Ohio	W
245	375	430-860	230	d.c.	20" Cold Rolling Mill	Geared	1922	Otis Steel Company	Cleveland, Ohio	W
246	375	430-860	230	d.c.	20" Cold Rolling Mill	Geared	1922	Otis Steel Company	Cleveland, Ohio	W
247	375	430-860	230	d.c.	20" Cold Rolling Mill	Geared	1922	Otis Steel Company	Cleveland, Ohio	W
248	375	430-860	230	d.c.	20" Cold Rolling Mill	Geared	1922	Otis Steel Company	Cleveland, Ohio	W
249	375	430-860	230	d.c.	Cold Roll Mill	Geared	1925	Otis Steel Co.	Cleveland, Ohio	GE
250	375	430-860	230	d.c.	Cold Roll Mill	Geared	1925	Otis Steel Co.	Cleveland, Ohio	GE
251	400	75		d.c.	Welding Rolls	Coupled	1906	National Tube Co.	McKeesport, Pa.	CW
252	400-400	107- 64	2200	25	16" Bar Mill	Direct	1914	Bethlehem Steel Co.	Lebanon, Pa.	GE
253	400	125	230	d.c.	12" Structural Mill	Direct	1919	Eastern Steel Co.	Pottsville, Pa.	W
254	400	150-300	250	d.c.	Copper Rod	Geared	1929	Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
255	400	180-540	600	d.c.	Merchant Mill	Direct	1928	American Steel & Wire Co.	Cleveland, O.	W
256	400	200-300	230	d.c.	9" Merchant Mill	Direct	1914	United Alloy Steel Corporation	Canton, Ohio	W
257	400	210-350	230	d.c.	Merchant Mill		1915	Buffalo Bolt Co.	No. Tonawanda, N. Y.	CW
258	400	223-669	600	d.c.	Merchant Mill	Direct	1928	American Steel & Wire Co.	Cleveland, O.	W
259	400	240-721	600	d.c.	9" Merchant Mill	Geared	1926	Illinois Steel Co.	Gary, Ind.	GE
260	400	240-721	600	d.c.	9" Merchant Mill	Geared	1926	Illinois Steel Co.	Gary, Ind.	GE
261	400	240-721	600	d.c.	9" Merchant Mill	Geared	1926	Illinois Steel Co.	Gary, Ind.	GE
262	400	240-721	600	d.c.	9" Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
263	400-400	250-500	230	d.c.	10" Merchant Mill	Direct	1920	Timken Roller Bearing Co.	Canton, Ohio	GE
264	400	250-750	600	d.c.	Merchant Mill	Direct	1928	American Steel & Wire Co.	Cleveland, O.	W
265	400-400	275-500	550	d.c.	12" Hot Strip Mill	Direct	1916	American Steel & Wire Co.	Cleveland, Ohio	GE
266	400	277	2200	60	Copper Rod Mill	Direct	1927	Washburn Wire Co.	Phillipsdale, R. I.	AC
267	400	277	440	60	Chromel Mill	Direct	1928	Hoskins Mfg. Co.	Detroit, Mich.	W
268	400	295-885	600	d.c.	Merchant Mill	Direct	1928	American Steel & Wire Co.	Cleveland, O.	W
269	400	290	2200	60	Cold Rolling Mill	Geared	1916	Youngstown Sheet & Tube Co.	Warren, Ohio	W
270	400	290	2200	60	Cold Rolling Mill	Geared	1917	Liberty Steel Co.	Warren, Ohio	W
271	400	300	2200	25	Merchant Mill	Rope	1909	American Steel & Wire Co.	Cleveland, Ohio	GE
272	400	300	2200	25	Merchant Mill	Rope	1909	American Steel & Wire Co.	Cleveland, Ohio	GE
273	400	300	2200	25	Merchant Mill	Rope	1909	American Steel & Wire Co.	Cleveland, Ohio	GE
274	400	300	2200	25	Merchant Mill	Rope	1909	American Steel & Wire Co.	Cleveland, Ohio	GE
275	400	300	2200	25		Geared	1918	Pittsburgh Steel Co.	Monessen, Pa.	AC
276	400	300	440	60			1918	Witherow Steel Co.	Neville Island, Pa.	AC

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
277	400	300	550	25	Tube Mill	Geared	1927	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
278	400	300	550	25	Tube Mill	Geared	1927	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
279	400	300	440	60	Copper & Brass Rolling Mill	Geared	1927	Dallas Brass & Copper Co.	Chicago, Ill.	EM
280	400	300	440	60	Copper & Brass Rolling Mill	Geared	1927	Dallas Brass & Copper Co.	Chicago, Ill.	EM
281	400	300	440	60	Copper & Brass Rolling Mill	Geared	1928	Dallas Brass & Copper Co.	Chicago, Ill.	EM
282	400	300–600	250	d.c.	Copper Rod	Geared	1929	Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
283	400	300–600	250	d.c.	Copper Rod	Geared	1929	Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
284	400	300–600	250	d.c.	Copper Rod	Geared	1929	Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
285	400	350	230	d.c.	Tube Reeling Drive	Geared	1927	National Tube Co.	Lorain, Ohio	AC
286	400	350	230	d.c.	Tube Reeling Drive	Geared	1927	National Tube Co.	Lorain, Ohio	AC
287	400	350	440	60	9″ Copper Finishing Mill	Direct	1916	Standard Underground Cable Co.	Perth Amboy, N. J.	W
288	400	352	2200	60	Copper Rod Mill	Geared	1923	American Brass Company	Kenosha, Wis.	W
289	400	350	2200	60	Cold Roll Mill	Geared	1928	Newton Steel Co.	Newton Falls, O.	W
290	400	350	2200	60	Cold Roll Mill	Geared	1928	Newton Steel Co.	Newton Falls ,O.	W
291	400	350	2200	60	Cold Roll Mill	Geared	1928	Newton Steel Co.	Newton Falls, O.	W
292	400	360	2200	60	Sheet Mill, Cold Rolls	Geared	1916	Mahoning Valley Steel Co.	Niles, Ohio	GE
293	400	360	2200	60	Sheet Mill, Cold Rolls	Geared	1916	Mahoning Valley Steel Co.	Niles, Ohio	GE
294	400	360	2200	60	Brass Mill	Geared	1917	American Brass Co.	Waterbury, Conn.	GE
295	400	360	2200	60	Brass Mill	Geared	1917	American Brass Co.	Waterbury, Conn.	GE
296	400	360	2200	60	Cold Roll Sheet Mill	Geared	1918	Reeves Mfg. Co.	Canal Dover, Ohio	GE
297	400	360	2200	60	Brass Mill	Geared	1921	American Brass Co.	Torrington, Conn.	GE
298	400	360	2200	60	Brass Mill	Geared	1921	American Brass Co.	Torrington, Conn.	GE
299	400	360	440	60	Cold Strip Mill	Geared	1921	American Tube and Stamping Co.	Bridgeport, Conn.	GE
300	400	360	440	60			1921	Detroit Copper & Brass Co.	Detroit, Mich.	AC
301	400	360	2200	60	8″ Strip Mill	Coupled	1923	Pittsburgh Steel Co.	Glassport, Pa.	CW
302	400	360	2300	60	Sheet Mill, Cold Rolls	Geared	1925	Thomas Sheet Steel Co.	Niles, Ohio	GE
303	400	375	220	25	20″ Tube Mill, Wld. Rolls	Geared	1909	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
304	400	375	220	25	Tube Mill, Chill Rolls	Geared	1909	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
305	400	375	2200	25	Wire Drawing Bench	Rope	1915	American Steel & Wire Co.	Cleveland, Ohio	GE
306	400	375	2200	25	Wire Drawing Bench	Rope	1915	American Steel & Wire Co.	Cleveland, Ohio	GE
307	400	375	220	25	Tube Mill, Wld. Rolls	Geared	1917	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
308	400	375	220	25	Tube Mill, Wld. Rolls	Geared	1912	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
309	400	375	220	25	Tube Mill, Wld. Rolls	Geared	1922	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
310	400	385	550	40	22″ Puddle Mill	Geared	1917	Cohoes Rolling Mill Co.	Cohoes, N. Y.	W
311	400	400–450	220	d.c.	8″ Merchant Mill	Direct	1911	Illinois Steel Co.	Milwaukee, Wis.	W
312	400	400	400	60	Bar Mill	Chain	1918	Latrobe Steel Co.	Latrobe, Pa.	AC
313	400	400	440	60	Lap Welding Rolls	Geared	1923	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
314	400	400	440	60	Lap Welding Rolls	Geared	1923	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
315	400	400–800	230	d.c.	Cold Strip Mill	Geared	1926	Trumbull Steel Co.	Warren, Ohio	GE
316	400	400–800	230	d.c.	Cold Strip Mill	Geared	1927	Trumbull Steel Co.	Warren, Ohio	GE
317	400	400–800	230	d.c.	Cold Strip Mill	Geared	1927	Trumbull Steel Co.	Warren, Ohio	GE
318	400	400–800	230	d.c.	Cold Strip Mill	Geared	1927	Trumbull Steel Co.	Warren, Ohio	GE
319	400	400–800	230	d.c.	Cold Strip Mill	Geared	1927	Central Alloy Steel Co.	Massillon, Ohio	GE
320	400	400–800	230	d.c.	Cold Mill	Geared	1927	American Sheet & Tinplate Co.	McKeesport, Pa.	GE
321	400	400	2200	60	Copper Rod Mill	Direct	1927	Washburn Wire Co.	Phillipsdale, R. I.	AC
322	400	400	2200	60	9″ Merchant Mill	Belted	1928	Carpenter Steel Co.	Reading, Pa.	GE
323	400	400–800	230	d.c.	Cold Strip	Geared	1929	Crucible Steel Co.	Pittsburgh, Pa.	W
324	400	400–1200	230	d.c.	Cold Roll	Geared	1929	American Sheet & Tinplate Co.	Farrel, Pa.	AC
325	400	420–1050	250	d.c.	12″ Hoop Mill	Geared	1928	Carnegie Steel Co.	Youngstown, O.	W
326	400	420–1050	250	d.c.	10″ Merchant Mill	Geared	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
327	400	435	2200	60	Aluminum Mill	Geared	1918	U. S. Aluminum Co.	New Kensington, Pa	W
328	400	435	2200	60	Aluminum Mill	Geared	1918	U. S. Aluminum Co.	New Kensington, Pa.	W
329	400	435	440	60	Pipe Mill	Geared	1918	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
330	400	435	2200	60	Aluminum Mill	Geared	1919	U. S. Aluminum Co.	Edgewater, N. J.	W
331	400	440	2200	60	Copper Rod Mill	Geared	1922	American Brass Company	Kenosha, Wis	W
332	400	440	4000	60	Billet Mill	Coupled	1923	Bryden Neverslip Co.	Catasauqua, Pa.	AC
333	400	440	440	60	8″ Mill	Chain	1928	Phoenix Horseshoe Co.	Joliet, Ill.	W
334	400	440	440	60	8″ Mill	Chain	1928	Phoenix Horseshoe Co.	Joliet, Ill.	W
335	400	400	440	60	8″ Mill	Chain	1928	Phoenix Horseshoe Co.	Joliet, Ill.	W
336	400	450	2200	60	Brass Mill	Geared	1917	American Brass Co.	Waterbury, Conn.	GE
337	400	450	2200	60	Bar Mill	Geared	1917	Standard Seamless Tube Co.	Economy, Pa.	AC
338	400	450	550	60		Geared	1918	Pressed Steel Car Co.	McKees Rocks, Pa.	AC
339	400	450	2200	60	Wire Drawing Bench	Geared	1919	Gulf States Steel Co.	Birmingham, Ala.	GE
340	400	450	2200	60	Wire Drawing Bench	Geared	1919	Gulf States Steel Co.	Birmingham, Ala.	GE
341	400	450	440	60	Brass Sheet Mill	Geared	1920	Detroit Copper & Brass Co.	Detroit, Mich.	GE
342	400	450	440	60			1921	Detroit Copper & Brass Co.	Detroit, Mich.	AC
343	400	450	440	60	Sheet Mill	Geared	1924	New Jersey Zinc Co.	Palmerton, Pa.	GE
344	400	450	440	60	Sheet Mill	Geared	1924	New Jersey Zinc Co.	Palmerton, Pa.	GE
345	400	450	2200	60	9″ Bar Mill	Geared	1924	Atchison, Topeka & S. F. Ry. Co	Chicago, Ill.	AC
346	400	450	2200	60	12″ Bar Mill	Geared	1924	Atchison, Topeka & S. F. Ry. Co	Chicago, Ill.	AC
347	400	450–900	250	d.c.	Copper Rod	Geared	1929	Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
348	*400	450	4600	60	Copper	Geared	1929	Chase Co., Inc.	Waterbury, Conn.	GE
349	*400	450	4600	60	Copper	Geared	1929	Chase Co., Inc.	Waterbury, Conn.	GE
350	*400	450	4600	60	Copper	Geared	1929	Chase Co., Inc.	Waterbury, Conn.	GE
351	*400	450	4600	60	Copper	Geared	1929	Chase Co., Inc.	Waterbury, Conn.	GE
352	*400	450	4600	60	Copper	Geared	1929	Chase Co., Inc.	Waterbury, Conn.	GE
353	*400	450	4600	60	Copper	Geared	1929	Chase Co., Inc.	Waterbury, Conn.	GE
354	*400	450	4600	60	Copper	Geared	1929	Chase Co., Inc.	Waterbury, Conn.	GE
355	400	480	440	25	Merchant Mill	Geared	1927	Bethlehem Steel Co.	Lackawanna, N. Y.	CW
356	400	485	440	25	9″ Merchant Mill	Geared	1916	Hess Steel Corporation	Baltimore, Md.	W
357	400	500–1000	600	d.c.	Strip Mill	Geared	1926	Forged Steel Wheel Co.	Butler, Pa.	AC
358	400	500–1000	600	d.c.	Strip Mill	Geared	1926	Forged Steel Wheel Co.	Butler, Pa.	AC
359	400	500–1000	600	d.c.	Strip Mill	Geared	1926	Forged Steel Wheel Co.	Butler, Pa.	AC
360	400	500–1000	600	d.c.	Strip Mill	Geared	1926	Forged Steel Wheel Co.	Butler, Pa.	AC
361	400	500	6600	25	Tube Sizing Mill	Geared	1927	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
362	400	500	6600	25	Reducing Tube Mill	Geared	1928	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
363	400	500	6600	25	Reducing Tube Mill	Geared	1928	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
364	400	500–1000	600	d.c.	Cold Strip	Geared	1929	American Rolling Mills	Butler, Pa.	W
365	400	500–1000	600	d.c.	Cold Strip	Geared	1929	American Rolling Mills	Butler, Pa.	W
366	400	500–1000	600	d.c.	Cold Strip	Geared	1929	American Rolling Mills	Butler, Pa.	W
367	400	500–1000	600	d.c.	Cold Strip	Geared	1929	American Rolling Mills	Butler, Pa.	W
368	400	500–1000	600	d.c	Cold Sheet	Geared	1929	American Rolling Mills	Middletown, Ohio	W
369	400	514	2200	60			1918	Cleveland Brass & Copper Co.	Cleveland, Ohio	AC
370	400	514	2200	60	Brass Tubes	Geared	1915	American Brass Company	Waterbury, Conn.	GE
371	400	514	2200	60	Brass Tubes	Geared	1915	American Brass Company	Waterbury, Conn.	GE
372	400	514	2200	60	24″ Roughing Mill	Geared	1915	American Brass Company	Kenosha, Wis.	AC
373	400	514	2200	60	20″ Flat Mill	Geared	1915	American Brass Company	Kenosha, Wis.	AC
374	400	514	2200	60	18″ Bar Mill	Geared	1915	American Brass Company	Kenosha, Wis.	AC
375	400	514	440	60	16″ Copper Bar Mill	Geared	1916	Waclark Wire Co.	Elizabeth, N. J.	GE
376	400	514	2200	60	Bar Mill	Geared	1919	Judson Mfg. Co.	Oakland, Calif.	AC
377	400	514	2200	60	Brass Mill	Geared	1922	Western Cartridge Co.	East Alton, Ill.	GE
378	400	514	6600	60			1924	Weirton Steel Co.	Weirton, W. Va.	AC
379	400	514	6600	60			1924	Weirton Steel Co.	Weirton, W. Va.	AC
380	400	514	2200	60	Cold Mill	Geared	1927	American Rolling Mill	Zanesville, Ohio	W
381	400	514	4000	60	Rail Splitter	Direct	1926	Inland Steel Co.	Indiana Harbor, Ind.	GE
382	400	514	2300	60	Tube Mill	Direct	1929	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
383	*400	514	440	60	Sheet Mill	Geared	1929	Aluminum Products Co.	LaGrange, Ill.	W
384	400	575	2200	60	Cold Rolling Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
385	400	575	2200	60	Cold Rolling Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
386	400	575	2200	60	Cold Rolling Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
387	400	575	2200	60	Cold Rolling Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
388	400	575	440	60	Sheet Cop. Rolling Mill	Geared	1923	American Metal Products Co.	Milwaukee, Wis.	W
389	400	585	4000	60	14" Merchant Mill	Geared	1922	Calumet Steel Co.	Chicago, Ill.	W
390	400-225	600-300	550	40	Bar Mill	Geared	1909	Ludlum Steel Co.	Watervliet, N. Y.	GE
391	400	600	440	60	Piercing Mill	Geared	1915	Chase Metal Works	Waterbury, Conn.	GE
392	400	600	440	60	Billet Piercing Machine	Geared	1915	Chase Metal Works	Waterbury, Conn.	GE
393	400	600	440	60	Brass Mill	Geared	1917	Rome Brass & Copper Co.	Rome, N. Y.	GE
394	400	600	2200	60	Wire Rod Mill	Geared	1917	Rome Wire Co.	Rome, N. Y.	AC
395	400	600	440	60	Wire Mill	Coupled	1917	Rome Wire Co.	Rome, N. Y.	AC
396	400	600	440	60	12" Merchant Mill	Geared	1919	The Stanley Works	New Britain, Conn.	GE
397	400	600	440	60	Tube Mill	Geared	1920	Globe Seamless Tube Co.	Milwaukee, Wis.	AC
398	400	600	2200	60	Brass Mill	Geared	1921	American Brass Company	Torrington, Conn.	GE
399	400	600	550	50		Geared	1912	National Conduit & Cable Co.	Hast.on Hudson,N.Y	AC
400	400	600	2200	60	Zinc Mill	Geared	1922	Ball Brothers Glass Co.	Muncie, Ind.	GE
401	400	600	220	60		Coupled	1918	Consumers Steel Co.	Chicago, Ill.	AC
402	400	600	2200	60	2-Roughing Stands—Brass Rolling Mills	Geared	1925	American Brass Co.	Torrington, Conn.	GE
403	400	600	2300	60	Tube Welding Mill	Geared	1927	South Chester Tube Co.	Chester, Pa.	GE
404	400	600	2300	60	Brass Mill	Geared	1928	Chase Companies, Inc.	Waterville, Conn.	GE
405	400	600	2300	60	Brass Mill	Geared	1928	Chase Companies, Inc.	Waterville, Conn.	GE
406	400	600	440	60	Copper	Geared	1929	Rome Brass & Copper Co.	Rome, N. Y.	GE
407	400	600	440	60	Copper	Geared	1929	Rome Brass & Copper Co.	Rome, N. Y.	GE
408	400	700	440	60	Merchant Mill	Geared	1928	Vulcan Crucible Steel Co.	Alliquippa, Pa.	W
409	400	705	2200	60	16" Cogging Mill	Geared	1923	Crucible Steel Co. of America Park Works	Pittsburgh, Pa.	W
410	400	720-450	2200	60	Bar Mill	Geared	1917	Cyclops Steel Co.	Titusville, Pa.	AC
411	400	720	2200	60	Copper Mill	Geared	1920	Rome Wire Co.	Rome, N. Y.	GE
412	400	720	550	60	Copper Mill	Geared	1920	Phillips Wire Co.	Pawtucket, R. I.	GE
413	400	720	4600	60	Copper Mills	Geared	1927	Higgins Brass & Mfg. Co.	Detroit, Mich.	GE
414	400	720	4600	60	Copper Mills	Geared	1927	Higgins Brass & Mfg. Co.	Detroit, Mich.	GE
415	400	750	4400	25	Rail Splitter	Geared	1925	Buffalo Steel Co.	Tonawanda, N. Y.	GE
416	400-200	800-400	230	d.c.	Copper Sheet Mill	Geared	1925	Rome Brass & Copper Co.	Rome, N. Y.	GE
417	400-265	875-585	2200	60	Bar Mill	Geared	1913	Old Dominion Iron & Nail Co.	Richmond, Va.	W
418	400	900	550	60	Brass Mill	Geared	1920	American Brass Company	Ansonia, Conn.	GE
419	400	900	550	60	Brass Mill	Geared	1920	American Brass Company	Ansonia, Conn.	GE
420	400	900	550	60	Brass Mill	Geared	1920	American Brass Company	Ansonia, Conn.	GE
421	400	900	550	60	Brass Mill	Geared	1920	American Brass Company	Ansonia, Conn.	GE
422	400	900	2200	60	Bar and Billet Mill	Geared	1925	Crucible Steel Co.	Pittsburgh, Pa.	W
423	400	900	550	60	Brass Mill	Geared	1921	American Brass Company	Ansonia, Conn.	GE
424	450	125	6600	25	12" Bar Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
425	450	200-400	230	d.c.	Zinc Sheet Mill, 26" x 72'	Geared	1924	Illinois Zinc Co.	Peru, Illinois	W
426	450	211-422	600	d.c.	9" Merchant Mill	Geared	1926	Illinois Steel Co.	Gary, Ind.	GE
427	450	211-422	600	d.c.	9" Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
428	450	300	2200	60			1920	Pittsburgh Steel Prod. Co.	Allenport, Pa.	AC
429	450	300	2200	60			1920	Pittsburgh Steel Prod. Co.	Allenport, Pa.	AC
430	450	300	230	d.c.	10" Tube Mill	Coupled	1911	Pittsburgh Seamless Tube Co.	Beaver Falls, Pa.	CW
431	450	354-230	2200	60	8" Merchant Mill	Direct	1919	Bourne-Fuller Co.	Cleveland, Ohio	W
432	450	375	440	25	Cold Roll	Geared	1925	Seneca Iron & Steel Co.	Blasdell, N. Y.	CW
433	450	400-650	230	d.c.	Rod (1 Stand) No. 2 Mill	Direct	1913	American Steel & Wire Co.	Worcester, Mass.	W
434	450	440	2200	60	Merchant Mill	Geared	1920	Kansas City Bolt & Nut Co.	Kansas City, Mo.	W
435	450	440-350	2220	60	Cont. Hoop (Finishing)	Direct	1920	Conners Steel Co.	Birmingham, Ala.	W
436	450	450-600	230	d.c.	12" Cold Strip Mill	Geared	1915	Superior Steel Co.	Carnegie, Pa.	W
437	450	450-600	230	d.c.	12" Cold Strip Mill	Geared	1915	Superior Steel Co.	Carnegie, Pa.	W
438	450	450	2080	60	18" Merchant Mill	Geared	1919	Columbia Steel Co.	Pittsburgh, Cal.	GE
439	450	450	2080	60	12" Merchant Mill	Geared	1919	Columbia Steel Co.	Pittsburgh, Cal.	GE
440	450	500	440	60	Brass Rolling Mill	Geared	1918	Michigan Copper & Brass Co.	Detroit, Mich.	W
441	450	514	550	60	14" Cold Strip Mill	Geared	1922	Wallingford Steel Co.	Wallingford, Conn.	GE
442	450	550-750	230	d.c.	Zinc Rolls	Coupled	1924	Mattheisen & Hegeler Zinc Co.	LaSalle, Ill.	CW
443	450	550-750	230	d.c.	Zinc Strip Mills	Geared	1925	Mattheisen & Hegeler Zinc Co.	LaSalle, Ill.	CW
444	450	585	2200	50	14" Merchant Mill	Geared	1918	Columbia Steel Co.	Los Angeles, Cal.	W
445	450	600	550	60	Copper Rod Mill	Geared	1920	Phillips Wire Co.	Pawtucket, R. I.	GE
446	450	700-595	2200	60	Cont. Hoop (Finishing)	Direct	1921	Conners Steel Co.	Birmingham, Ala.	W
447	450	720	2200	60	Piercing Mill	Geared	1924	Standard Seamless Tube Co.	Economy, Pa.	GE
448	450	720	2200	60	Seamless Tube	Geared	1927	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
449	450	720	2200	60	Wire Bench Mill	Geared	1928	Gulf States Steel Co.	Alabama City, Ala.	W
450	450	720	2200	60	Wire Bench Mill	Geared	1928	Gulf States Steel Co.	Alabama City, Ala.	W
451	450	720	2200	60	Wire Bench Mill	Geared	1928	Gulf States Steel Co.	Alabama City, Ala.	W
452	450	730-490	4000	25	10" Merchant Mill	Geared	1917	Atlas Steel Corporation	Dunkirk, N. Y.	W
453	450	730	6600	25	Hoop Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	W
454	450	730	6600	25	Hoop Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	W
455	450	870	440	60	Copper Clad Mill	Geared	1915	Duplex Metal Co.	Philadelphia, Pa.	W
456	450-360	870-695	2200	60	10" Merchant Mill	Geared	1914	Cleveland Hardware Co.	Cleveland, Ohio	W
457	450-360	875-700	2200	60	9" Merchant Mill	Geared	1915	National Lock Washer Co.	Riverside, N. J.	W
458	475-350	240-181	440	25	10" Merchant Mill	Direct	1914	Kansas City Bolt & Nut Co.	Kansas City, Mo.	W
459	485-360	870-695	2200	60	10" Merchant Mill	Geared	1915	Old Dominion Iron & Nail Co.	Richmond, Va.	W
460	500	0-200	500	d.c.	78" Reversing Brass Plate	Geared	1920	West Virginia Metal Products Co.	Fairmont, W. Va.	W
461	500	88	6600	25	16" Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
462	500	120	2200	60	Copper Rod Mill	Direct	1927	Washburn Wire Co.	Phillipsdale, R. I.	AC
463	500-385-250	130-100-65	440	25	14" Merchant Mill	Direct	1923	Halcomb Steel Co.	Syracuse, N. Y.	GE
464	500	130-310	600	d.c.	10" Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
465	500	150-225	250	d.c.	12" Merchant Mill	Direct	1919	National Farming Mach. Co., Ltd.	Montmagny, P. Q.	W
466	500	150-550	600	d.c.	10" Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
467	500	150-300	600	d.c.	10" Merchant Mill	Direct	1928	Steel Co. of Canada	Hamilton, Ont.	W
468	500	150-450	230	d.c.	Merchant Mill	Direct	1928	Barton Spider Web. Co.	Chicago, Ill.	W
469	500	155-500	250	d.c.	Tyre Mill	Direct	1923	McConway Torley Co.	Pittsburgh, Pa.	W
470	500	173-432	600	d.c.	10" Merchant	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
471	500	173-432	600	d.c.	10" Merchant	Geared	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
472	500	175-350	250	d.c.	12" Merchant Mill	Direct	1926	Pittsburgh Crucible Steel Co.	Midland, Pa.	GE
473	500	175-350	600	d.c.	12" Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
474	500	175-350	600	d.c.	12" Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
475	500	175-350	600	d.c.	12" Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
476	500	180-360	600	d.c.	14"-12" Skelp Mill	Geared	1926	Wheeling Steel Corp.	Benwood, W. Va.	GE
477	500	184	2200	25	12" Merchant Mill	Rope	1905	Ontario Iron & Steel Co.	Welland, Ont.	W
478	500	184	2200	25	16" Merchant Mill	Direct	1908	Bethlehem Steel Co.	Johnstown, Pa.	W
479	500	190	230	d.c.	18" Tandem Rough. Mill	Rope	1910	Sharon Steel Hoop Co.	Sharon, Pa.	GE
480	500	190	230	d.c.	24" Blooming Mill	Geared	1910	Sharon Steel Hoop Co.	Sharon, Pa.	GE
481	500	200-400	250	d.c.	10" Cont. Mill	Coupled	1925	Republic Iron & Steel Co.	Youngstown, Ohio	AC
482	500	200-400	600	d.c.	10" Merchant Mill	Direct	1928	Steel Co. of Canada	Hamilton, Ont.	W
483	500	210-525	600	d.c.	16" Strip Mill	Geared	1928	Weirton Steel Co.	Weirton, W. Va.	GE
484	500	212-495	600	d.c.	10" Merchant	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
485	500	212-495	600	d.c.	10" Merchant	Geared	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
486	500	214	6600	25	Axle Mill	Geared	1909	Illinois Steel Co.	Gary, Ind.	GE
487	500	220-400	550	d.c.	Brass Mill	Geared	1913	Scovill Manufacturing Co.	Waterbury, Conn.	W
488	500	220-400	550	d.c.	Brass Mill	Geared	1913	Scovill Manufacturing Co.	Waterbury, Conn.	W
489	500	220-400	550	d.c.	Brass Mill	Geared	1913	Scovill Manufacturing Co.	Waterbury, Conn.	W
490	500	220-400	550	d.c.	Brass Mill	Geared	1913	Scovill Manufacturing Co.	Waterbury, Conn.	W
491	500	220-400	550	d.c.	Brass Mill	Geared	1913	Scovill Manufacturing Co.	Waterbury, Conn.	W
492	500	234	2200	60	Tube Mills	Coupled	1922	Pittsburgh Steel Products Co.	Allenport, Pa.	CW
493	500	240	2200	60	Cold Roll Mill	Geared	1928	Columbia Steel Corp.	Pittsburgh, Cal.	W

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
494	500-330	242-161	440	25	16" and 10" Merchant Mill	Direct & Rope	1913	Kansas City Bolt & Nut Co.	Kansas City, Mo.	W
495	500	244	2200	25	10" Merchant Mill	Direct	1908	Bethlehem Steel Co.	ohnstown, Pa.	W
496	500-500	250-325	230	d.c.	8" Hoop Mill	Direct	1909	Atlantic Steel Co.	Atlanta, Ga.	GE
497	500	250-500	230	d.c.	9" Hoop Mill Finishing	Direct	1914	Sharon Steel Hoop Co.	Sharon, Pa.	W
498	500	250	440	25	10" Bar Mill	Geared	1917	Simonds Manufacturing Co.	Lockport, N. Y.	GE
499	500	250	2200	60	Tube Mill	Coupled	1918	Pittsburgh Steel Products Co.	Allenport, Pa.	CW
500	500	250	2200	60	Tube Mill	Geared	1918	Pittsburgh Steel Products Co.	Allenport, Pa.	CW
501	500	250	6600	25	Sheet Mill Cold Rolls	Geared	1919	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
502	500	250-350	600	d.c.	9" Merchant Mill	Direct	1921	Missouri Rolling Mill Co.	St. Louis ,Mo.	W
503	500	250-600	250	d.c.	12-9" Mill	Coupled	1925	Bethlehem Steel Co.	Johnstown, Pa.	AC
504	500	250-380	600	d.c.	10" Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, O.	W
505	500	250-500	600	d.c.	10" Merchant Mill	Direct	1928	Steel Co. of Canada	Hamilton, Ont.	W
506	500	250-750	250	d.c.	Cold Strip	Geared	1929	Wheeling Steel Corporation	Steubenville, Ohio	GE
507	500	250-750	250	d.c.	Cold Strip	Geared	1929	Wheeling Steel Corporation	Steubenville, Ohio	GE
508	500	250-750	250	d.c.	Cold Strip	Geared	1929	Wheeling Steel Corporation	Steubenville, Ohio	GE
509	500	250-750	250	d.c.	Cold Strip	Geared	1929	Wheeling Steel Corporation	Steubenville, Ohio	GE
510	500	250-750	250	d.c.	Cold Strip	Geared	1929	Wheeling Steel Corporation	Steubenville, Ohio	GE
511	500	250-750	250	d.c.	Cold Strip	Geared	1929	Wheeling Steel Corporation	Steubenville, Ohio	GE
512	500	250-580	600	d.c.	10" Merchant	Geared	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
513	500	258-580	600	d.c.	10" Merchant	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
514	500	257	2300	60	Rail Mill	Geared	1928	West Virginia Rail Co.	Huntington, W. Va.	AC
515	500	267-800	230	d.c.	Hot Merchant Mill	Geared	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
516	500	267-800	230	d.c.	Hot Merchant Mill	Direct	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
517	500	267-800	230	d.c.	Hot Merchant Mill	Direct	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
518	500	267-800	230	d.c.	Hot Merchant Mill	Direct	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
519	500	267-800	230	d.c.	Hot Merchant Mill	Geared	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
520	500	267-800	230	d.c.	Merchant Mill	Geared	1927	Allegheny Steel Co.	Brackenridge, Pa.	GE
521	*500	277	440	60	10" Merchant	Direct	1929	Hoskins Mfg. Co.	Detroit, Mich.	W
522	500	290	4000	60	8" Merchant Mill	Direct	1920	Calumet Steel Co.	Cicago, Ill.	W
523	500	290	2200	25	Brass Mill	Geared	1920	American Brass Co.	Buffalo, N. Y.	W
524	500	300	2200	60	Sheet Mill		1915	U. S. Aluminum Co.	New Kensington, Pa.	AC
525	500	300	2200	60	Sheet Mill		1915	U. S. Aluminum Co.	New Kensington, Pa.	AC
526	500	300	2200	60	Sheet Mill		1915	U. S. Aluminum Co.	New Kensington, Pa.	AC
527	500	300	2200	60	Squeezer	Geared	1919	Pacific Coast Steel Co.	Seattle, Wash.	AC
528	500	300	2200	60	Bar Mill	Coupled	1920	Ft. Wayne Rolling Mill Co.	Ft. Wayne, Ind.	AC
529	500	300-450	230	d.c.	Lap Welding Mill	Coupled	1923	Gary Tube Co.	Gary, Ind.	AC
530	500	300-681	600	d.c.	10" Merchant	Geared	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
531	500	327	2200	60	Copper	Geared	1929	Apollo Steel Co	Apollo, Pa.	GE
532	500	320	2200	60	12" Merchant Mill	Geared	1919	Baltimore & Ohio Railroad	Cumberland, Md.	W
533	500-500	327-200	440	60	9" Merchant Mill	Direct	1913	Bourne-Fuller Co.	Cleveland, Ohio	GE
534	500	340-543	600	d.c.	10" Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, O.	W
535	500	350	2200	60	Cold Rolling Mill	Geared	1916	Mansfield Sheet & Tin Plate Co.	Mansfield, Ohio	W
536	500	350	440	60	Cold Rolling Mill	Geared	1916	Andrews Steel Co.	Newport, Ky.	W
537	500	353	2200	60		Geared	1928	Central Alloy Steel Co.	Canton, Ohio	AC
538	500	360	2200	25	8" Merchant Mill	Direct	1913	Bethlehem Steel Co.	Johnstown, Pa.	W
539	500	360	2200	60	Tube Mill	Geared	1915	American Brass Company	Waterbury, Conn.	GE
540	500	360	2200	60	16" Bar Mill	Geared	1915	Tennessee Coal, Iron & R. R. Co.	Bessemer, Ala.	GE
541	500	360	2200	60	Copper Mill	Geared	1917	Anaconda Copper Mining Co.	Black Eagle, Mont.	GE
542	500	360	2200	60	Sheet Mill, Cold Rolls	Geared	1920	Central Steel Co.	Massillon, Ohio	GE
543	500	360	2200	60	Sheet Mill, Cold Rolls	Geared	1920	Central Steel Co.	Massillon, Ohio	GE
544	500	360	2200	60	Sheet Mill, Cold Rolls	Geared	1920	Republic Iron & Steel Co.	Youngstown, Ohio	GE
545	500	360	2200	60	Billet Piercing Mill	Geared	1922	Weldless Tube Co.	Wooster, Ohio	GE
546	500	360	440	60	Brass Mill	Direct	1923	Rome Brass and Copper Co.	Rome, N. Y.	GE
547	500	360	440	60	Brass Mill	Direct	1923	Rome Brass and Copper Co.	Rome, N. Y.	GE
548	500	360-612	600	d.c.	Reversing Hot Mill	Geared	1925	Mich. Copper & Brass Co.	Detroit, Mich.	GE
549	500	360	2200	60	Cold Sheet	Geared	1929	Newton Steel Co.	Monroe, Mich.	GE
550	500	360	2200	60	Cold Sheet	Geared	1929	Newton Steel Co.	Monroe, Mich.	GE
551	500	360	2200	60	Cold Sheet	Geared	1929	Newton Steel Co.	Monroe, Mich.	GE
552	500	360	2200	60	Cold Sheet	Geared	1929	Newton Steel Co.	Monroe, Mich.	GE
553	500	360	2200	60	Tube Finishing	Geared	1929	Timken Roller Bearing Co.	Canton, Ohio	GE
554	500	360	2200	60	Tube Finishing	Geared	1929	Timken Roller Bearing Co.	Canton, Ohio	GE
555	500	365	440	25	Copper Rolling Mill	Rope	1922	Baltimore Copper Smelt.& Roll.Co.	Baltimore, Md.	W
556	500	368	2200	25	Brass Mill	Geared	1920	American Brass Company	Kenosha, Wis.	W
557	500	375	2200	25	Wheel Mill	Geared	1913	Bethlehem Steel Co.	Johnstown, Pa.	AC
558	500	375	2300	25		Geared	1919	Buffalo Copper & Brass Co.	Buffalo, N. Y.	AC
559	500	375	2300	25		Geared	1925	Buffalo Copper & Brass Co.	Buffalo, N. Y.	AC
560	500	375	2200	25	10" Aluminum Rod Mill	Geared	1926	U. S. Aluminum Co.	Massena, N. Y.	GE
561	500	375-750	440	25	Copper Sheet Mill	Geared	1928	American Smelting & Refining Co.	Baltimore, Md.	GE
562	500	400-800	230	d.c.	Cold Strip Mill	Geared	1927	Newton Steel Co.	Newton Falls, Ohio	W
563	500	400-800	230	d.c.	Tube Reeling Mill	Geared	1927	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
564	500	400-800	230	d.c.	Tube Reeling Mill	Geared	1927	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
565	500	400-800	230	d.c.	14" Tandem Copper Mill	Geared	1927	Rome Brass & Copper Co.	Rome, N. Y.	GE
566	500	400-800	230	d.c.	14" Tandem Copper Mill	Geared	1927	Rome Brass & Copper Co.	Rome, N. Y.	GE
567	500	400-800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
568	500	400-800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
569	500	400-800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
570	500	400-800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
571	500	400-800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
572	500	400-800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
573	500	400-800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
574	500	400-800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
575	500	400-800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
576	500	400-800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
577	500-500	400-600	230	d.c.	Hoop Mill	Geared	1920	Atlantic Steel Co.	Atlanta, Ga.	GE
578	500	400-600	600	d.c.	8" Strip Mill	Direct	1928	Superior Steel Corp.	Carnegie, Pa.	W
579	500	400-800	230	d.c.	12"-9" Merchant Mill	Geared	1928	Timken Roller Bearing Co.	Canton, Ohio	AC
580	500	400-800	230	d.c.	Cold Strip	Geared	1929	Acme Steel Co.	Riverdale, Ill.	GE
581	500	400-800	230	d.c.	Cold Strip	Geared	1929	Acme Steel Co.	Riverdale, Ill.	GE
582	500	400-800	230	d.c.	Cold Strip	Geared	1929	Acme Steel Co.	Riverdale, Ill.	GE
583	500	400-800	230	d.c.	Cold Strip	Geared	1929	Acme Steel Co.	Riverdale, Ill.	GE
584	500	400-900	230	d.c.	Cold Strip	Geared	1929	Weirton Steel Co.	Weirton, W. Va.	GE
585	500	400-900	230	d.c.	Cold Strip	Geared	1929	Weirton Steel Co.	Weirton, W. Va.	GE
586	500	400-900	230	d.c.	Cold Strip	Geared	1929	Cold Metal Process Co.	Youngstown, Ohio	GE
587	500	400-900	230	d.c.	Cold Strip	Geared	1929	Cold Metal Process Co.	Youngstown, Ohio	GE
588	500	435	440	60	8" Merchant Mill	Rope	1911	Carnegie Steel Co. Painter Mills	Pittsburgh, Pa.	W
589	500	435	440	60	8" Merchant Mill	Rope	1912	Carnegie Steel Co. Painter Mills	Pittsburgh, Pa.	W
590	500	435	440	60	8" Merchant Mill	Rope	1912	Carnegie Steel Co. Painter Mills	Pittsburgh, Pa.	W
591	500	435	440	60	9" Merchant (Fin.) Mill	Belted	1914	Carnegie Steel Co. Painter Mills	Pittsburgh, Pa.	W
592	500	435	440	60	10" Merchant Mill	Belted	1914	Carnegie Steel Co. Painter Mills	Pittsburgh, Pa.	W
593	500	435	2200	60	Merchant Mill	Geared	1916	Seymour Manufacturing Co.	Waterbury, Co.	W
594	500	435-722	600	d.c.	10" Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, Ohio	W
595	500	440	2200	60	Copper Rod Mill	Geared	1923	American Brass Company	Kenosha, Wis.	W
596	500	440	2200	60	Bar Mill	Geared	1924	Universal Steel Co.	Bridgeville, Pa.	AC
597	500	440	4000	60	Bar Mill	Coupled	1923	Bryden Neverslip Co.	Catasauqua, Pa.	AC
598	500	442	2200	60	Cold Rolling Mill	Geared	1922	Follansbee Bros. Co.	Toronto, Ohio	W
599	500	440	440	60	16" Bar Mill	Chain	1928	Phoenix Horseshoe Co.	Joliet, Ill.	W
600	500	450	440	60	Bar Mill	Geared	1910	Chase Rolling Mills Co.	Waterbury, Conn.	GE
601	500	450	440	60	Bar Mill	Geared	1910	Chase Rolling Mills Co.	Waterbury, Conn.	GE
602	500	450	550	60	12" Cold Roll Mill	Geared	1914	Worcester Pressed Steel Co.	Worcester, Mass.	GE
603	500	450	440	60	16" Bar Mill	Geared	1914	Carbon Steel Co.	Pittsburgh, Pa.	GE

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
604	500	450	2200	60	Brass Mill	Geared	1915	Scoville Manufacturing Co.	Waterbury, Conn.	GE
605	500	450	2200	60	Brass Mill	Geared	1915	Scoville Manufacturing Co.	Waterbury, Conn.	GE
606	500	450	2200	60	Brass Mill	Geared	1915	Scoville Manufacturing Co.	Waterbury, Conn.	GE
607	500	450	2200	60	Brass Mill	Geared	1915	Chase Metal Works	Waterbury, Conn.	GE
608	500	450	2200	60	Billet Mill	Geared	1915	International High Speed Steel Co.	Rockaway, N. J.	GE
609	500	450	2200	60	Sheet Mill	Geared	1915	American Brass Company	Torrington, Conn.	GE
610	500	450	2200	60	Tube Mill	Geared	1916	Ohio Seamless Tube Co.	Shelby, Ohio	GE
611	500	450	440	60	20″ Copper Mill	Geared	1916	Waclark Wire Co.	Elizabeth, N. J.	GE
612	500	450	440	60	Wire Mill	Geared	1916	Waclark Wire Co.	Elizabeth, N. J.	GE
613	500	450	2300	60	Merchant Mill	Geared	1916	Pacific Coast Steel Co.	San Francisco, Cal.	GE
614	500	450	2200	60	Copper Mill	Geared	1917	Anaconda Copper Mining Co.	Black Eagle, Mont.	GE
615	500	450	2200	60	Copper Mill	Geared	1917	Anaconda Copper Mining Co.	Black Eagle, Mont.	GE
616	500	450	2200	60	Brass Mill	Geared	1917	American Brass Company	Waterbury, Conn.	GE
617	500	450	2200	60	Brass Mill	Geared	1917	American Brass Company	Waterbury, Conn.	GE
618	500	450	440	60	20″ Copper Mill	Coupled	1918	Waclark Wire Co.	Bayway, N. J.	CW
619	500	450	2200	60	Tube Mill	Geared	1919	Ohio Seamless Tube Co.	Shelby, Ohio	GE
620	500	450	440	60	Brass Sheet Mill	Geared	1920	Detroit Copper & Brass Co.	Detroit, Mich.	GE
621	500	450	2200	60	Brass Mill	Geared	1921	American Brass Company	Torrington, Conn.	GE
622	500	450	2200	60	Brass Mill	Geared	1921	American Brass Company	Torrington, Conn.	GE
623	500	450	2200	60	14″ Roughing Mill	Geared	1921	International Nickel Co.	Huntington, W. Va.	AC
624	500	450	2200	60	9″ Finishing Mill	Geared	1921	International Nickel Co.	Huntington, W. Va.	AC
625	500	450	2200	60	Hoop Mill	Geared	1912	Carnegie Steel Co.	Pittsburgh, Pa.	CW
626	500	450	2200	60	Bar Mill	Geared	1925	Indianapolis Steel Products Co.	Indianapolis, Ind.	AC
627	500	450	2200	60	Copper Mill	Direct	1925	Anaconda Copper Mining Co.	Black Eagle, Mont.	GE
628	500	450	2300	60	Brass Mill	Geared	1928	Chase Companies, Inc.	Waterville, Conn.	GE
629	*500	450	4000	60	Cold Strip	Geared	1929	Riverside Metal Co.	Riverside, N. J.	W
630	500	450–900	250	d.c.	Copper Rod	Geared	1929	Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
631	500	450–900	250	d.c.	Copper Rod	Geared	1929	Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
632	500	480–250	230	d.c.	Merchant Mill	Coupled	1923	Buffalo Bolt Co.	N. Tonawanda, N. Y.	CW
633	500	487	6600	25	8″ Merchant Mill	Direct	1913	Minnesota Steel Co.	Duluth, Minn.	W
634	500	500	2300	25	Milling Machine	Direct	1914	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
635	500–500–500	500–375–265	2200	25	10″ Merchant Mill	Direct & Belt	1916	Donner Steel Co.	Buffalo, N. Y.	GE
636	500	500	550	25	Tube Mill	Geared	1917	Baltimore Tube Co.	Baltimore, Md.	W
637	500	500	2300	25	18″ Merchant Mill	Geared	1919	Halcomb Steel Co.	Syracuse, N. Y.	GE
638	500	500	2200	25	16″ Bar Mill	Geared	1919	Hammond Steel Co.	Solvay, N. Y.	GE
639	500	500	2200	25	Continuous Tube Mill	Coupled	1915	Pittsburgh Steel Products Co.	Monessen, Pa.	CW
640	500	500	2200	25	Experimental Alum.	Geared	1925	U. S. Aluminum Co.	Massena, N. Y.	GE
641	500	500	2200	25	Aluminum Mill	Geared	1928	U. S. Aluminum Co.	Massena, N. Y.	GE
642	500	514	440	60	Bar Mill	Chain	1915	Simmons Mfg. Co.	Kenosha, Wis.	AC
643	500	514	2200	60	Bar Mill	Rope	1917	Henry Disston & Son	Philadelphia, Pa.	AC
644	500	514	550	60	18″ Copper Mill	Geared	1919	American Brass Co.	Hastings, N. Y.	GE
645	500	514	2200	60	Bar Mill	Geared	1919	Judson Mfg. Co.	Oakland, Calif.	AC
646	500	514	2200	60	Bar Mill	Geared	1920	Metals Production Equipment Co.	Springfield, Mass.	AC
647	500	514	2200	60	Bar Mill	Geared	1920	Metals Production Equipment Co.	Springfield, Mass.	AC
648	500	514	2200	60	Bar Mill	Geared	1920	Metals Production Equipment Co.	Springfield, Mass.	AC
649	500	514	2200	60	Brass Mill	Geared	1922	Western Cartridge Co.	East Alton, Ill.	GE
650	500	514	2200	60	Cold Roll Sheet	Geared	1929	Follansbee Brothers Co.	Follansbee, W. Va.	EM
651	500	543–892	600	d.c.	10″ Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, Ohio	W
652	500	575–865	2200	60	10″ Merchant Mill	Geared	1921	International Nickel Co.	Huntington, W. Va.	W
653	500	575–865	2200	60	10″ Merchant Mill	Geared	1921	International Nickel Co.	Huntington, W. Va.	W
654	500	575	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
655	500	575	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
656	500	575	2200	60	Copper Rod Mill	Geared	1923	American Brass Company	Kenosha, Wis.	W
657	500	585	2200	60	Copper Rod Mill	Geared	1922	Eugene F. Phillips Elec. Wks., Ltd.	Montreal, Que.	W
658	500–340	588–400	2200	60	Rod Mill	Geared	1928	Keystone Steel & Wire Co.	Peoria, Ill.	W
659	500	600	2200	60			1913	Cleveland Brass & Copper Co.	Cleveland, Ohio	AC
660	500	600	2200	60	Brass Mill	Geared	1917	American Brass Company	Waterbury, Co.	GE
661	500	600	2200	60	Brass Mill	Geared	1917	American Brass Company	Waterbury, Co.	GE
662	500	600	2200	60	Brass Mill	Geared	1917	American Brass Company	Torrington, Co.	GE
663	500	600	2200	60	Bar Mill	Belted	1919	Joslyn Mfg. Co.	Chicago, Ill.	AC
664	500	600	2200	60	Merchant Mill	Geared	1923	Taunton-New Bedford Copper Co.	Taunton, Mass.	GE
665	500	600	2200	60	Copper Rolling Mill	Geared	1923	American Brass Company	Torrington, Co.	GE
666	500	600	2200	60	Reducing Pipe Mill	Geared	1925	Ohio Seamless Tube Co.	Shelby, Ohio	GE
667	500	600	2200	60	Continuous Sheet Mill	Geared	1926	American Rolling Mill Co.	Ashland, Ky.	W
668	500	600	4600	60	Reducing Mill	Geared	1926	Detroit Seamless Steel Tube Co.	Detroit, Mich.	AC
669	500	600	440	60	Aluminum Mill	Geared	1922	Aluminum Goods Mfg. Co.	Manitowoc, Wis.	GE
670	500	600	2200	60	10″ Rod Mill	Geared	1927	Dilworth Porter Co.	Pittsburgh, Pa.	GE
671	500	600	2200	60	Tube Finishing	Geared	1929	Timken Roller Bearing Co.	Canton, Ohio	GE
672	500	600	2200	60	Tube Finishing	Geared	1929	Timken Roller Bearing Co.	Canton, Ohio	GE
673	500	600	2200	60	Tube Finishing	Geared	1929	Timken Roller Bearing Co.	Canton, Ohio	GE
674	500	600	2200	60	Forming Mill	Geared	1929	Dillworth Porter Co.	Pittsburgh, Pa.	GE
675	500	600	6600	60	Cold Sheet	Geared	1929	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	GE
676	500	720	2300	60	Sheet	Geared	1929	Sessions Engr. Co.	Chicago, Ill.	W
677	500	667–1000	600	d.c.	10″ Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, Ohio	W
678	500	730–485	2200	50	8″ Merchant Mill	Geared	1919	Southern California Iron & Steel Co.	Los Angeles, Cal.	W
679	500–250	750–375	3000	50	Merchant Mill	Geared	1923	Consolidated Rolling Mills Co.	Mexico City, Mex.	GE
680	500–400	775–585	550	40	10″ Merchant Mill	Geared	1917	Cohoes Rolling Mill Co.	Cohoes, N. Y.	W
681	500	870	2200	60	16″ Merchant Mill	Geared	1919	McConway-Torley Co.	Pittsburgh, Pa.	W
682	500–400	875–700	550	60	10″–14″ Merchant Mill	Geared	1916	The Texas Steel Co.	Fort Worth, Texas	W
683	500	882	2200	60	Seamless Tube	Geared	1929	Babcock & Wilcox Co.	Beaver Falls, Pa.	W
684	500	884	2200	60	9″ Rougher	Geared	1925	Crucible Steel Co.	Atha Works	W
685	500	888–540	6600	60	11″ Finishing Stand	Coupled		Tennessee Coal, Iron & R. R. Co.	Birmingham, Ala.	AC
686	500–250	890–513 440–256	2200	60	10″ Merchant Mill	Geared	1919	Heater Crucible Steel Co.	Cleveland, Ohio	W
687	500	900	440	60	10″ Merchant Mill	Geared	1925	Latrobe Elec. Steel Co.	Latrobe, Pa.	GE
688	525	125	2200	25	Merchant Mill	Rope	1910	American Sheet & Tin Plate Co	Gary, Ind.	GE
689	525	125	2200	25	Merchant Mill	Rope	1910	American Sheet & Tin Plate Co.	Gary, Ind.	GE
690	550	120–300	250	d.c.	10″ Merchant Mill	Direct	1923	Firth Sterling Steel Co.	McKeesport, Pa.	W
691	550	320–206	2200	60	10″ Hoop Mill	Direct	1917	Atlantic Steel Co.	Atlanta, Ga.	W
692	550	336–588	600	d.c.	9″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
693	550	420–714	600	d.c.	9″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
694	550	420–714	600	d.c.	9″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
695	550	575	2200	60	16″ Skelp Mill	Geared	1919	Tyler Tube & Pipe Co.	Washington, Pa.	W
696	550–360	875–585	2200	60	12″ Merchant Mill	Geared	1918	Norfolk & Western Railroad	Roanoke, Va.	W
697	550	880	2200	60	16″ Merchant Mill	Geared	1919	Danville Structural Tubing Co.	Danville, Pa.	W
698	550	880	2200	60	Merchant Mill	Geared	1921	Danville Structural Tubing Co.	Danville, Pa.	W
699	575	300–214	6600	25	10″ Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
700	575–575	375–250	6600	25	8″ Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
701	600	90	440	60	Brass & Nickel Silver Rolling Mill	Direct	1928	Waterbury Rolling Mills	Waterbury, Conn.	EM
702	600	150	550	60	Sheet Mill, Cold Rolls	Rope	1909	Weirton Steel Co.	Weirton, W. Va.	GE
703	600–600	150–250	575	d.c.	6″ Hot Strip Mill	Direct	1913	American Steel & Wire Co.	Cleveland, Ohio	GE
704	600	185–470	600	d.c.	10″ Strip Mill	Direct	1926	LacLede Steel Co.	Alton, Ill.	W
705	600	200–300	230	d.c.	9″ Merchant Mill	Direct	1914	United Alloy Steel Corporation	Canton, Ohio	W
706	600	200–300	230	d.c.	9″ Merchant (Fin.) Mill	Direct	1915	United Alloy Steel Corporation	Canton, Ohio	W
707	600	200–400	250	d.c.	9″ Merchant	Direct	1929	Carpenter Steel Co.	Reading, Pa.	W
708	600	205–515	600	d.c.	Merchant Mill	Geared	1928	American Steel & Wire Co.	Cleveland, Ohio	W
709	600	205–515	600	d.c.	Merchant Mill	Geared	1928	American Steel & Wire Co.	Cleveland, Ohio	W
710	600–600	214– 93	6600	25	12″ Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
711	600	214	440	25			1920	Baltimore Copper S. & R. Co.	Baltimore, Md.	AC

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
712	600	214	440	25			1920	Baltimore Copper S. & R. Co.	Baltimore, Md.	AC
713	600–600	225–425	550	d.c.	12″ Hot Strip Mill	Direct	1916	American Steel & Wire Co.	Cleveland, Ohio	GE
714	600	227–454	230	d.c.	12″–9″ Merchant Mill	Geared	1928	Timken Roller Bearing Co.	Canton, Ohio	AC
715	*600	257	2300	60	Cold Sheet	Geared	1929	American Sheet & Tinplate Co.	Vandergrift, Pa.	W
716	600	270–635	600	d.c.	10″ Strip Mill	Direct	1926	LacLede Steel Co.	Alton, Ill.	W
717	600	290	2200	25	60″ Sheet Jobbing Mill	Geared	1927	AlanWood Iron & Steel Co.	Conshohocton, Pa.	W
718	600–600	300–214	2200	25	Bar Mill	Coupled & Rope	1914	St. Louis Screw Co.	St. Louis, Mo.	AC
719	600	300–214	2200	25	Bar Mill	Chain	1914	St. Louis Screw Co.	St. Louis, Mo.	AC
720	600	300	2200	25	Muck Mill	Chain	1914	St. Louis Screw Co.	St. Louis, Mo.	AC
721	600	300	2200	60	Sheet Mill	Geared	1917	Universal Rolling Mill Co.	Bridgeville, Pa.	AC
722	600	300	2200	60	Tube Mill	Coupled	1918	Pittsburgh Steel Products Co.	Allenport, Pa.	CW
723	600	300	440	25	Tandem Plate Mill	Rope	1920	Baltimore Copper S. & R. Co.	Baltimore, Md.	AC
724	600	300	440	25	Tandem Plate Mill	Rope	1920	Baltimore Copper S. & R. Co.	Baltimore, Md.	AC
725	600	300	2200	60	Tube Mill	Coupled	1917	Pittsburgh Steel Products Co.	Monessen, Pa.	CW
726	600	300	550	60	Copper Rod Mill	Direct	1926	American Brass Co.	Ansonia, Conn.	GE
727	600	300–330	230	d.c.	10″ Bar Mill	Coupled	1921	Universal Steel Co.	Bridgeville, Pa.	CW
728	*600	300	2300	60	Cold Sheet	Geared	1929	American Sheet & Tinplate Co.	Vandergrift, Pa.	W
729	*600	300	2200	25	2-Stand 9″ Mill	Direct	1929	Algoma Steel Co.	Ste. Marie, Ont.	GE
730	600–400–200	321–214–107	440	25	9″ Merchant Mill	Direct	1923	Halcomb Steel Co.	Syracuse, N. Y.	GE
731	600	350–788	250	d.c.	10″ Merchant Mill	Geared	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
732	600	350–788	250	d.c.	10″ Merchant Mill	Geared	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
733	600	350–788	250	d.c.	10″ Merchant Mill	Geared	1928	Tennessee Coal ,Iron & R. R. Co.	Fairfield, Ala.	CW
734	600	350–700	600	d.c.	Wire Rod Mill	Geared	1928	John A. Roebling's Sons	Trenton, N. J.	GE
735	600	360	2200	60	Tube Mill	Geared	1914	Standard Seamless Tube Co.	Economy, Pa.	GE
736	600	360	2200	60	10″ Hot Strip Mill	Direct	1919	Superior Steel Co.	Carnegie, Pa.	GE
737	600	360–440	500	d.c.	Aluminum Mill	Geared	1919	U. S. Aluminum Co.	Marysville, Tenn.	W
738	600	360–440	500	d.c.	Aluminum Mill	Geared	1919	U. S. Aluminum Co.	Marysville, Tenn.	W
739	600	360–440	500	d.c.	Aluminum Mill	Geared	1919	U. S. Aluminum Co.	Marysville, Tenn.	W
740	600	360	440	60	Copper Mills	Geared	1923	Am. Insulated Wire & Cable Co.	Chicago, Ill.	GE
741	600	360	550	60	Copper Rod Mill	Direct	1926	American Brass Co.	Ansonia, Conn.	GE
742	600	365	6600	25	10″ Merchant Mill	Direct	1913	Minnesota Steel Co.	Duluth, Minn.	W
743	600	368	6600	25	18″–21″ Roughing Mill	Geared	1924	Pittsburgh Crucible Steel Co.	Midland, Pa.	AC
744	600–400	375–210	2200	25	9″ Merchant Mill	Direct	1912	Gulf States Steel Co.	Birmingham, Ala.	GE
745	*600	375	6600	25	Tube Mill	Geared	1929	National Tube Co.	Gary, Ind.	AC
746	600	390	440	60	20″ Merchant Mill	Geared	1916	Stanley Works	New Haven, Conn.	W
747	600	390	440	60	Cold Strip Mill	Geared	1917	Stanley Works	New Haven, Conn.	W
748	600	400–800	250	d.c.	18″ Merchant Mill	Geared	1926	Pittsburgh Crucible Steel Co.	Midland, Pa.	GE
749	600	400	2300	60	10″ Rod Mill	Direct	1927	Copperweld Steel Co.	Glassport, Pa.	GE
750	600	400–800	230	d.c.	Cold Strip Mill	Geared	1927	American Rolling Mill Co.	Ashland, Ky.	W
751	600	400–800	230	d.c.	Cold Strip Mill	Geared	1927	American Rolling Mill Co.	Ashland, Ky.	W
752	600	400–800	230	d.c.	Cold Strip Mill	Geared	1927	American Rolling Mill Co.	Ashland, Ky.	W
753	600	400–800	230	d.c.	Cold Strip Mill	Geared	1927	American Rolling Mill Co.	Ashland, Ky.	W
754	600	400–800	230	d.c.	Cold Strip Mill	Geared	1927	American Rolling Mill Co.	Ashland, Ky.	W
755	600	400–900	250	d.c.	12″ Hoop Mill	Geared	1928	Carnegie Steel Co.	Youngstown, O.	W
756	600	400–900	250	d.c.	12″ Hoop Mill	Geared	1928	Carnegie Steel Co.	Youngstown, O.	W
757	600	400–900	250	d.c.	12″ Hoop Mill	Geared	1928	Carnegie Steel Co.	Youngstown, Ohio	W
758	600	400–1000	600	d.c.	10″ Hot Strip	Geared	1929	Acme Steel Co.	Riverdale, Ill.	W
759	600	425–850	250	d.c.	12″ Merchant	Geared	1929	Carpenter Steel Co.	Reading, Pa.	W
760	600	440	2200	60	10″ Rod Mill	Direct	1917	Wickwire Spencer Steel Corp.	Palmer, Mass.	W
761	600	450	2200	60	Aluminum Strip Mill	Geared	1914	Cleveland Metal Products Co.	Cleveland, Ohio	GE
762	600	450–900	600	d.c.	10″ Merchant Mill	Geared	1928	Steel Co. of Canada	Hamilton, Ont.	W
763	600	450–900	600	d.c.	10″ Merchant Mill	Geared	1928	Steel Co. of Canada	Hamilton, Ont.	W
764	600	450–900	600	d.c.	10″ Hot Strip	Geared	1929	Acme Steel Co.	Riverdale, Ill.	W
765	600	450–900	600	d.c.	10″ Hot Strip	Geared	1929	Acme Steel Co.	Riverdale, Ill.	W
766	600	450–900	600	d.c.	10″ Hot Strip	Geared	1929	Acme Steel Co.	Riverdale, Ill.	W
767	600	450–900	600	d.c.	10″ Hot Strip	Geared	1929	Acme Steel Co.	Riverdale, Ill.	W
768	*600	450	4600	60	Copper	Geared	1929	Chase Co., Inc.	Waterbury, Conn.	GE
769	*600	450	4600	60	Copper	Geared	1929	Chase Co., Inc.	Waterbury, Conn.	GE
770	*600	450	4600	60	Copper	Geared	1929	Chase Co., Inc.	Waterbury, Conn.	GE
771	*600	450	2200	60	Reeling	Geared	1929	Spang Chalfant Co.	Ambridge, Pa.	GE
772	*600	450	2200	60	Reeling	Geared	1929	Spang Chalfant Co.	Ambridge, Pa.	GE
773	600–600–600	469–375–281	2200	25	8″ Merchant Mill	Direct	1919	Donner Steel Co.	Buffalo, N. Y.	GE
774	600	485	2200	25	10″ Merchant Mill	Direct	1912	Laclede Steel Co.	Alton, Ill.	W
775	600	485	440	25	20″ Merchant Mill	Geared	1915	Hess Steel Corporation	Baltimore, Md.	W
776	600	485	550	25	Piercing Mill	Geared	1915	Baltimore Tube Co.	Baltimore, Md.	W
777	600	490	2200	25	16″ Bar Roughing Mill	Geared	1919	Scullin Steel Co.	St. Louis, Mo.	W
778	600	500	2200	60	20″ Merchant Mill	Geared	1916	Carpenter Steel Co.	Reading, Pa.	W
779	600	500	2200	60	16″ Merchant Mill	Geared	1917	Central Steel Co.	Massillon, Ohio	W
780	600	500	440	25	16″ Merchant Mill	Geared	1919	Buffalo Bolt Co.	N.Tonawanda, N. Y.	GE
781	600	500	575	25	Brass Sheet Mill	Geared	1920	Baltimore Tube Co.	Baltimore, Md.	GE
782	600	500	575	25	Brass Sheet Mill	Geared	1920	Baltimore Tube Co.	Baltimore, Md.	GE
783	600–440	514–300	4150	60	10″ Merchant Mill	Rope	1912	W. Ames & Co.	Jersey City, N. J.	GE
784	600	514	440	60	Aluminum Mill	Geared	1922	Aluminum Goods Mfg. Co.	Manitowoc, Wis.	GE
785	600	514	2200	60	Brass Mill	Geared	1922	Western Cartridge Co.	East Alton, Ill.	GE
786	600	514	2200	60	18″ Bar Mill	Geared	1926	American Nickel Corp.	Hyde, Pa.	GE
787	600	514	2300	60	8″ Rod Mill	Direct	1927	Copperweld Steel Co.	Glassport, Pa.	GE
788	600	585–325	550	40	15″ Merchant Mill	Geared	1917	Cohoes Rolling Mill Co.	Cohoes, N. Y.	W
789	600	585	2200	60	Sheet Mill	Geared	1928	American Rolling Mill Co.	Ashland, Ky.	W
790	600–500–400	600–500–400	2200	25	Merchant Mill, No. 10	Direct	1916	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
791	600–300	600–300	550	60	9″ Bar Mill No. 2	Geared	1926	Ludlum Steel Co.	Watervliet, N. Y.	GE
792	600	600	4000	60	Brass Mill	Geared	1917	Bristol Brass Co.	Bristol, Conn.	GE
793	600	600	2200	60	Copper Mill	Geared	1920	American Brass Co.	Waterbury, Conn.	GE
794	600	600	440	60	16″ Merchant Mill		1920	Wayne Steel Co.		AC
795	600	600	2300	60		Coupled		Fulton Steel Corp.	Fulton, N. Y.	AC
796	600	600	2200	60	Brass Mill	Geared	1921	American Brass Co.	Waterbury, Conn.	GE
797	600	600	550	60	Copper Rod Mill	Geared	1925	Phillips Wire Co.	Pawtucket, R. I.	GE
798	600	600	2200	60	8″ Merchant Mill	Geared	1928	Timken Roller Bearing Co.	Canton, Ohio	GE
799	600	600	2200	60	Wire Drawing	Geared	1929	J. A. Roebling & Sons Co.	Roebling, N. J.	GE
800	600	600	2200	60	Wire Drawing	Geared	1929	J. A. Roebling & Sons Co.	Roebling, N. J.	GE
801	600	600	2200	60	18″ Merchant	Geared	1923	Carpenter Steel Co.	Reading, Pa.	GE
802	600	705	2200	60	Merchant Mill	Geared	1927	Pollak Steel Co.	Cincinnati, O.	W
803	600	705	2200	60	10″ Rod Mill	Geared	1927	Washburn Wire Co.	Phillipisdale, R. I.	AC
804	600–600	720–360	6600	60	Hot Strip Mill	Geared	1916	Weirton Steel Co.	Weirton, W. Va.	AC
805	600	720	4000	60	Rail Re-rolling	Geared	1927	Northern Steel Co.	Medford, Mass.	GE
806	600	720	2200	60	18″ Breakdown Mill	Geared	1928	Kilby Car & Foundry Co.	Anniston, Ala.	GE
807	*600	720	4600	60	4-High Mill	Geared	1929	Michigan Brass & Copper Co.	Detroit, Mich.	GE
808	*600	720	4600	60	4-High Mill	Geared	1929	Michigan Brass & Copper Co.	Detroit, Mich.	GE
809	600	885	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
810	600	885	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
811	600	900	440	60	Copper Rod Mill	Geared	1920	Western Elec. Co.	Hawthorne, Ill.	GE
812	600	900	550	60	Brass Mill	Geared	1920	American Brass Co.	Ansonia, Conn.	GE
813	600	900	440	60	Copper Mill	Geared	1923	Am. Insulated Wire & Cable Co.	Chicago, Ill.	GE
814	600	900	2300	60	10″ Mill	Geared	1927	Copperweld Steel Co.	Glassport, Pa.	GE
815	600	885	2300	60	Rail Mill	Geared	1928	West Virginia Rail Co.	Huntington, W. Va.	AC
816	650	160	440	60	14″ Guide Mill	Coupled		Witherow Steel Co.	Neville Island, Pa.	AC
817	650	184	6600	25	18″ Merchant Mill	Direct	1909	Indiana Steel Co.	Gary, Ind.	W
818	650	184	6600	25	14″ Merchant Mill	Direct	1909	Indiana Steel Co.	Gary, Ind.	W
819	650	200	440	60	14″ Guide Mill	Coupled		Witherow Steel Co.	Neville Island, Pa.	AC
820	650	210	6600	25	12″ Merchant Mill	Geared	1909	Indiana Steel Co.	Gary, Ind.	W
821	650	225–400	600	d.c.	Seamless Mill	Geared	1925	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W

No.	Horse Power	R.P.M.	Volt-age	Cycle	Type and Size of Mill	Method of Drive	Date of Pur-chase	Name of Plant	Location	Mfgd. By
822	650	225–400	600	d.c.	Seamless Mill	Geared	1925	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
823	650	225–400	600	d.c.	Seamless Mill	Geared	1925	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
824	650	293	2200	60	9″ Merchant Mill	Rope	1919	Harrisburg Pipe & Pipe Bending Co.	Harrisburg, Pa.	W
825	650	500	6600	25	10″ Merchant Mill	Direct	1916	Illinois Steel Co.	Gary, Ind.	GE
826	650	500	6600	25	10″ Merchant Mill	Direct	1916	Illinois Steel Co.	Gary, Ind.	GE
827	700	86	450	d.c.	Shear Intensifier	Direct	1918	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	GE
828	*700	100	2300	60	Hot Strip	Direct	1929	American Tube & Stamping Co.	Bridgeport, Conn.	W
829	700	130–310	600	d.c.	10″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
830	700	130–310	600	d.c.	10″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
831	700	187	2200	25	14″ Merchant Mill	Direct	1920	Donner Steel Co.	Buffalo, N. Y.	GE
832	700	200	240	d.c.	Pontoon Mill	Direct	1926	M. W. Kellogg	Newark, N. J.	CW
833	700	200	240	d.c.	Pontoon Mill	Direct	1926	M. W. Kellogg	Newark, N. J.	CW
834	700	210–660	600	d.c.	10″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
835	700	210–660	600	d.c.	10″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
836	700	250	2200	25	18″ Bar Mill	Rope	1911	Dillworth Porter Co.	Pittsburgh, Pa.	GE
837	700	240-450	250	d.c.	9″ Merchant Mill	Direct	1925	Crucible Steel Co.	Pittsburgh, Pa.	GE
838	700	264–595	600	d.c.	10″ Hot Strip	Direct	1929	Acme Steel Co.	Riverdale, Ill.	W
839	700	270–520	250	d.c.	10″ Merchant Mill	Direct	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
840	700	295	440	60		Geared	1925	Witherow Steel Co.	Neville Island, Pa.	AC
841	700	300–400	230	d.c.	Lap Welding Mill	Coupled	1923	Gary Tube Co.	Gary, Ind.	AC
842	700	300	2300	60	Hot Strip	Direct	1929	American Tube & Stamping Co.	Bridgeport, Conn.	W
843	700	320	2200	60	Sheet and Jobbing Mill	Direct	1917	Carbon Steel Co.	Pittsburgh, Pa.	W
844	700	360	440	60	Brass Mill	Chain		Detroit Copper & Brass Co.	Detroit, Mich.	AC
845	700	364	2200	25	8″ Merchant Mill	Direct	1912	Laclede Steel Co.	Alton, Ill.	W
846	700	390	2200	60	18″ Bar Mill	Geared	1922	Dilworth Porter Co.	Pittsburgh, Pa.	W
847	700–600–400	400–300–200	2200	25	Merchant Mill, No. 10	Direct	1916	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
848	700–600–400	400–300–200	2200	25	Merchant Mill, No. 10	Belt	1916	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
849	700	440	2200	60	16″ Mill	Geared	1926	Connors Steel Co.	Birmingham, Ala.	AC
850	700	480–290	2200	25	12″ Merchant Mill	Geared	1916	Halcomb Steel Co.	Syracuse, N. Y.	W
851	700	490	6600	25	Hoop Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	W
852	700	490	6600	25	Hoop Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	W
853	700	502	2200	60	Cold Rolling Mill	Direct	1919	Carnahan Tin Plate & Steel Co.	Canton, Ohio	W
854	700	585	2200	60	Copper Rod Mill	Geared	1922	Eugene F. Phillips Elec. Wks., Ltd.	Montreal, Que.	W
855	700	600	2200	60	14″ Bar Mill	Coupled	1921	Universal Steel Co.	Bridgeville, Pa.	CW
856	700	600	440	60	10″ Bar Mill	Geared	1929	Latrobe Elec. Steel Co.	Latrobe, Pa.	GE
857	700	730–490	4000	25	14″ Merchant Mill	Geared	1918	Atlas Steel Corporation	Dunkirk, N. Y.	W
858	700	735	4000	25	14″ Merchant Mill	Geared	1921	Atlas Steel Corporation	Dunkirk, N. Y.	W
859	700	735	440	25	Copper Rolling Mill	Geared	1924	Baltimore Cop.Smelt. & Rolling Co.	Baltimore, Md.	W
860	700	735	440	25	Copper Rolling Mill	Geared	1924	Baltimore Cop.Smelt. & Rolling Co.	Baltimore, Md.	W
861	700	735	440	25	Copper Rolling Mill	Geared	1924	Baltimore Cop.Smelt. & Rolling Co.	Baltimore, Md.	W
862	700	750	2200	25		Geared		Bethlehem Steel Company	Buffalo, N. Y.	AC
863	700	750	2200	25				Bethlehem Steel Company	Buffalo, N. Y.	AC
864	700	875	2200	60	Cont. Hoop (Rough). Mill	Geared	1920	Connors Steel Co.	Birmingham, Ala.	W
865	700	875	2200	60	Cont. Hoop (Intermed.)	Geared	1920	Connors Steel Co.	Birmingham, Ala.	W
866	700	880–530	2200	60	10″ Finishing Mill	Geared	1923	Crucible Steel Works of America, Park Works	Pittsburgh, Pa.	W
867	700	900–720	2200	60	10″ Merchant	Geared	1929	Manitoba Bridge & Iron Works	Calgary, Can.	GE
868	720	395–825	600	d.c.	10″ Strip Mill	Direct	1926	LacLede Steel Co.	Alton, Ill.	W
869	720	480–1000	600	d.c.	10″ Strip Mill	Direct	1926	LacLede Steel Co.	Alton, Ill.	W
870	750	94	2200	25	Sheet Mill	Rope	1912	West Penn. Steel Co.	Brackenridge, Pa.	GE
871	750	100	2200	25	Tin Mill, Cold Rolls	Geared	1915	American Sheet & Tin Plate Co.	Gary, Ind.	GE
872	750	100	2200	25	Tin Mill, Cold Rolls	Geared	1915	American Sheet & Tin Plate Co.	Gary, Ind.	GE
873	750	120–210	250	d.c.	14″ Finishing Mill	Coupled	1923	Pittsburgh Crucible Steel Co.	Midland, Pa.	AC
874	750	120–210	250	d.c.	14″ Finishing Mill	Coupled	1923	Pittsburgh Crucible Steel Co.	Midland, Pa.	AC
875	750	125	2200	25	Tin Mill, Cold Rolls	Rope	1915	McKeesport Tin Plate Co.	McKeesport, Pa.	GE
876	750	125	2200	25	Tin Mill, Cold Rolls	Rope	1915	McKeesport Tin Plate Co.	McKeesport, Pa.	GE
877	750	130	550	d.c.	Wheel Mill	Direct	1915	Carnegie Steel Co.	McKees Rocks, Pa.	GE
878	750	150–250	600	d.c.	14″ Merchant Mill	Direct	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
879	750	160	550	d.c.	Wheel Mill	Direct	1916	Edgewater Steel Co.	Oakmont, Pa.	GE
880	750	160	550	d.c.	Wheel Mill	Direct	1916	Edgewater Steel Co.	Oakmont, Pa.	GE
881	750	160	550	d.c.	Wheel Mill	Direct	1919	Edgewater Steel Co.	Oakmont, Pa.	GE
882	750	190–375	245	d.c.	Pontoon Mill	Coupled	1927	M. W. Kellog Co.	Jersey City, N. J.	CW
883	750	190–375	245	d.c.	Pontoon Mill	Coupled	1927	M. W. Kellog Co.	Jersey City, N. J.	CW
884	750	200–600	600	d.c.	10″ Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, Ohio	W
885	750	200–600	600	d.c.	Merchant Mill	Geared	1928	American Steel & Wire Co.	Cleveland, Ohio	W
886	750	200–400	250	d.c.	12″ Merchant	Direct	1929	Carpenter Steel Co	Reading, Pa.	W
887	750	225–500	250	d.c.	12″ Hoop Mill	Direct	1928	Carnegie Steel Co.	Youngstown, Ohio	W
888	750	225–500	250	d.c.	12″ Hoop Mill	Direct	1928	Carnegie Steel Co.	Youngstown, O.	W
889	750–750	225–168	440	60	Bar Mill	Coupled	1921	Simmons Mfg. Co.	Kenosha, Wis.	AC
890	750–750	235–325	230	d.c.	Piercing Mill	Geared	1914	Pittsburgh Seamless Tube Co.	Beaver Falls, Pa.	GE
891	750	240	2200	60	Sheet Mill, Cold Rolls	Geared	1919	Wheeling Steel Corp.	Stuebenville, Ohio	GE
892	750	250	2200	25	Bar Mill	Geared	1914	Bethlehem Steel Co.	Johnstown, Pa.	AC
893	750	250	2200	60	Tin Mill	Geared	1915	Weirton Steel Co.	Weirton, W. Va.	W
894	750	250	440	25	Bar Mill	Coupled	1920	Simonds Mfg. Co.	Lockport, N. Y.	AC
895	750	257	2200	60	10″ Strip Mill	Coupled	1923	Pittsburgh Steel Co.	Glassport, Pa.	CW
896	750	277	2200	60	18″ Merchant Mill	Geared	1915	Pacific Coast Steel Co.	San Francisco, Cal.	GE
897	750	295	6600	25	Seamless Mill	Geared	1923	Gary Tube Company	Gary, Ind.	W
898	750	300–600	230	d.c.	Cold Rolling Mill	Geared	1924	International Nickel Co.	Huntington, W. Va.	AC
899	750	300–600	230	d.c.	Bliss Cold Roll Drive	Geared	1926	International Nickle Co.	Huntington, W. Va.	AC
900	750	353	2200	60	Tube Rolling Mill	Direct	1915	National Tube Co.	Ellwood City, Pa.	W
901	750	353	2200	60	Tube Rolling Mill	Direct	1915	National Tube Co.	Ellwood City, Pa.	W
902	750	353	2200	60	Tube Rolling Mill	Direct	1915	National Tube Co.	Ellwood City, Pa.	W
903	750	353	2200	60	Piercing Mill	Direct	1915	National Tube Co.	Ellwood City, Pa.	W
904	750	353	2200	60	Piercing Mill	Direct	1915	National Tube Co.	Ellwood City, Pa.	W
905	750	353	2200	60	Piercing Mill	Direct	1915	National Tube Co.	Ellwood City, Pa.	W
906	750	353	4600	60	Brass Mill	Geared	1924	Scoville Mfg. Co.	Waterbury, Conn.	W
907	750–625–460	360–300–220	6600	25	12″ Hot Strip Mill	Direct	1920	Illinois Steel Co.	Gary, Ind.	GE
908	750	360	4600	60			1921	Detroit Copper & Brass Co.	Detroit, Mich.	AC
909	750–750	360–860	600	d.c.	14″ Continuous Mill	Geared	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
910	750	360–600	250	d.c.	10″ Merchant Mill	Direct	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
911	750	375	2200	25	10″ Aluminum Rod Mill	Geared	1926	U. S. Aluminum Co.	Massena, N. Y.	GE
912	750	400–800	600	d.c.	10″ Merchant	Geared	1929	Inland Steel Co.	Indiana Harbor, Ind.	GE
913	750	400–800	600	d.c.	10″ Merchant	Geared	1929	Inland Steel Co.	Indiana Harbor, Ind.	GE
914	750	425–850	250	d.c.	16″ Merchant	Geared	1929	Carpenter Steel Co.	Reading, Pa.	W
915	750	443	4600	60		Coupled	1921	Detroit Copper & Brass Co.	Detroit, Mich.	AC
916	750–600–440	473–375–278	6600	25	12″ Hot Strip Mill	Direct	1920	Illinois Steel Co.	Gary, Ind.	GE
917	750	500	230	d.c.	14″ Rail Rerolling Mill	Geared	1925	Ford Motor Co.	River Rouge, Mich.	AC
918	750	505	2200	60		Geared	1924	Kansas City Bolt & Nut Co.	Kansas City, Mo.	AC
919	750	505	2200	60	Copper	Geared	1929	National Elec. Products Co.	Bayway, N. J.	W
920	750	514	2200	60	Wire Red Mill	Geared	1917	Kokomo Steel & Wire Co.	Kokomo, Ind.	AC
921	750	514	440	60	14″ Merchant Mill	Geared	1920	Witherow Steel Co.	Neville Island, Pa.	AC
922	750	514	550	60	10″ and 9″ Copper Mills	Geared	1919	American Brass Co.	Hastings ,N. Y.	GE
923	750	514	550	60	10″ and 9″ Copper Mills	Geared	1919	American Brass Co.	Hastings, N. Y.	GE
924	750	514	2200	60	Merchant Mill	Geared	1920	W. M. Lewis	Indianapolis, Ind.	AC
925	750	600	4000	60	Brass Mill	Geared	1919	Bristol Brass Co.	Bristol, Conn.	GE
926	750	720	2200	60	Zinc Rolling Mill	Geared	1923	American Zinc Products Co.	Greencastle, Ind.	GE
927	750	720	550	60	Brass Rolling Mill	Geared	1925	American Brass Co.	Ansonia, Conn.	GE
928	750	720	2200	60	10″ Mill	Geared	1929	Kilby Car Foundry	Anniston, Ala.	GE
929	770–700–630	540–490–440	6600	25	Hoop Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	W
930	800	20	230	d.c.	32″ x 48″ Plate Mill	Coupled	1910	American Sheet & Tin Plate Co.	Gary, Ind.	CW
931	800	20	230	d.c.	32″ x 48″ Plate Mill	Coupled	1910	American Sheet & Tin Plate Co.	Gary, Ind.	CW

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
932	800	0-37-70	500	d.c.	Plate Mill	Coupled	1919	Universal Rolling Mill Co.	Bridgeville, Pa.	AC
933	800	94	2200	25	18" Merchant Mill	Direct	1912	Gulf States Steel Co.	Birmingham, Ala.	GE
934	800	100	6600	25	16" Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
935	800	107	6600	25	Tube Rolling Mill	Coupled	1925	National Tube Co.	Lorain, Ohio	AC
936	800	109	2200	60	2-21" Rolls	Coupled	1924	Globe Steel Tube Co.	Milwaukee, Wis.	AC
937	800	140-510	600	d.c.	10" Rod Mill	Direct	1927	American Steel & Wire Co.	Worcester, Mass.	W
938	800	140-510	600	d.c.	10" Rod Mill	Direct	1927	American Steel & Wire Co.	Worcester, Mass.	W
939	800	163	2200	25	22" Merchant Blooming	Rope	1905	Ontario Iron & Steel Co.	Welland, Ont.	W
940	800	175-350	600	d.c.	12" Alloy Bar Mill	Direct	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
941	800	175-350	600	d.c.	12" Alloy Bar Mill	Direct	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
942	800	175-350	600	d.c.	12" Alloy Bar Mill	Direct	1927	Illinois Steel Co.	S. Chicago, Ill.	GE
943	800	189	2200	60	Merchant Mill	Direct	1925	Pacific Coast Steel Co.	San Francisco, Cal.	CW
944	800	200-300	500	d.c.	Piercing Mill	Rope	1913	Pittsburgh Steel Products Co	Monessen, Pa.	W
945	800	200-300	500	d.c.	Piercing Mill	Direct	1912	Pittsburgh Steel Products Co.	Monessen, Pa.	W
946	800-800	200-400	600	d.c.	14" Hot Strip Mill	Direct	1920	Trumbull Steel Co.	Warren, Ohio	GE
947	800	200-400	250	d.c.	9" 7 Stand Mill	Coupled	1926	Crucible Steel Co. of America	Harrison, N. J.	AC
948	800	200-415	600	d.c.	12" Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	GE
949	800	200-415	600	d.c.	12" Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	GE
950	800	200-415	600	d.c.	12" Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	GE
951	800	200-600	500	d.c.	10" Merchant Rod & Strip Mill	Geared	1927	Ford Motor Co.	Detroit, Mich.	W
952	800-800	214-167	6600	25	16" Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
953	800	214	2200	25	Sheet Mill	Geared	1919	American Sheet & Tin Plate Co.	Gary, Ind.	GE
954	800	214	2200	25	Sheet Mill	Geared	1919	American Sheet & Tin Plate Co.	Gary, Ind.	GE
955	800	220-150	2200	25	12" Bar (Finishing) Mill	Direct	1919	Scullin Steel Co.	St. Louis, Mo.	W
956	800	220-440	600	d.c.	12" Alloy Bar Mill	Direct	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
957	800	220-440	600	d.c.	12" Alloy Bar Mill	Direct	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
958	800	220-440	600	d.c.	12" Alloy Bar Mill	Direct	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
959	800	225	2200	60	Roughing Mill	Geared	1916	Standard Seamless Tube Co.	Economy, Pa.	GE
960	800-800	231-462	600	d.c.	14" Hot Strip Mill	Direct	1920	Trumbull Steel Co.	Warren, Ohio	GE
961	800	240-480	600	d.c.	12" Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	GE
962	800	240-500	600	d.c.	Rod Mill	Direct	1928	Sheffield Steel Corp.	Kansas City, Mo.	W
963	800	250-500	230	d.c.	14" and 9" Hoop Mill	Direct	1914	Sharon Steel Hoop Co.	Sharon, Pa.	W
964	800	250	2200	60	Piercing Mill	Geared	1915	Timken Roller Bearing Co.	Canton, Ohio	W
965	800	250	2200	60	22" Bar Mill	Rope	1915	Timken Roller Bearing Co.	Canton, Ohio	W
966	800	250-750	600	d.c.	14" Hot Strip Mill	Direct	1927	Trumbull Steel Co	Warren, Ohio	GE
967	800	250-600	600	d.c.	16"-9" Skelp	Direct	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
968	800	250-600	600	d.c.	16"-9" Skelp	Geared	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
969	800	257	2300	60	Hot Strip	Direct	1929	American Tube & Stamping Co.	Bridgeport, Conn.	W
970	800-800	256-512	600	d.c.	14" Hot Strip Mill	Direct	1920	Trumbull Steel Co.	Warren, Ohio	GE
971	800	257	2200	60	Bar Mill	Geared	1914	Standard Seamless Tube Co.	Economy, Pa.	GE
972	800	257	2200	60	12" Rod Mill	Belt	1915	Crucible Steel Co. of America	Harrison, N. J.	GE
973	800	257	2200	60	Hot Strip Mill	Geared	1926	Standard Seamless Tube Co.	Economy, Pa.	GE
974	800	268	2200	60	14"-10" Merchant Mill	Rope	1912	United Alloy Steel Corporation	Canton, Ohio	W
975	800	265-665	240	d.c.	12" Strip	Direct	1929	West Leechburg Steel Co.	Leechburg, Pa.	W
976	800	265-665	240	d.c.	12" Strip	Direct	1929	West Leechburg Steel Co.	Leechburg, Pa.	W
977	800	265-665	240	d.c.	12" Strip	Geared	1929	West Leechburg Steel Co.	Leechburg, Pa.	W
978	800	265-665	240	d.c.	12" Strip	Geared	1929	West Leechburg Steel Co.	Leechburg, Pa.	W
979	800	265-665	240	d.c.	12" Strip	Geared	1929	West Leechburg Steel Co.	Leechburg, Pa.	W
980	800-800	275-550	600	d.c.	14" Hot Strip Mill	Direct	1920	Trumbull Steel Co.	Warren, Ohio	GE
981	800	275-550	700	d.c.	12" Merchant Mill	Geared	1925	Penn Seaboard Steel Co.	New Castle, Del.	GE
982	800	275-550	700	d.c.	12" Merchant Mill	Geared	1925	Penn Seaboard Steel Co.	New Castle, Del.	GE
983	800	275-550	700	d.c.	9" Merchant Mill	Direct	1925	Penn Seaboard Steel Co.	New Castle, Del.	GE
984	800	277	2200	60	Bar Mill	Geared	1918	Pacific Coast Steel Co.	San Francisco, Calif.	AC
985	800	292	2200	25	18" Tandem Billet Mill	Direct	1912	Laclede Steel Co.	Alton, Ill.	W
986	800	300	2200	60				Pittsburgh Steel Prod. Co.	Monessen, Pa.	AC
987	800	300	2300	60	10" Merchant Mill	Geared	1928	Laclede Steel Co.	Madison, Ill.	GE
988	800-800	315-210	575	d.c.	6" Hot Strip Mill	Direct	1907	American Steel & Wire Co.	Cleveland, Ohio	GE
989	800	320	440	60	9" Merchant Mill	Belted	1914	Carnegie Steel Co. Painter Mills	Pittsburgh, Pa.	W
990	800	320	440	60	10" Merchant Mill	Belted	1914	Carnegie Steel Co. Painter Mills	Pittsburgh, Pa.	W
991	800	350	2200	60	24" Bull Head Rolls of Sheet Bar Mill	Geared	1915	Central Steel Co.	Massillon, Ohio	W
992										
993	800	350	2200	60	Billet Mill	Geared	1915	Milton Manufacturing Co.	Milton, Pa.	W
994	800	350	2200	60	Aluminum Mill	Geared	1915	U. S. Aluminum Co.	Edgewater, N. J.	W
995	800	350-600	230	d.c.	Band Mill	Direct	1926	Sharon Steel Hoop Co.	Sharon, Pa.	CW
996	800	350-600	230	d.c.	Band Mill	Direct	1926	Sharon Steel Hoop Co.	Sharon, Pa.	CW
997	800	350-700	600	d.c.	20" Merchant Breakd'wn)	Geared	1921	Driver Harris	Harrison, N. J.	W
998	800	350-750	600	d.c.	8" Cont. Merchant Mill	Direct	1925	Inland Steel Co.	Indiana Harbor, Ind.	GE
999	800	350-790	600	d.c.	13" Skelp Mill	Geared	1928	National Tube Co.	McKeesport, Pa.	GE
1000	800	350-790	600	d.c.	13" Skelp Mill	Geared	1928	National Tube Co.	McKeesport, Pa.	GE
1001	800	353	2200	60	12"-5 Stand Merch. Mill	Belt	1924	United Steel Company	Everett, Wash.	W
1002	800	353	440	50	8" Copper Rod Mill	Direct	1923	Standard Underground Cable Co.	St. Louis, Mo.	W
1003	800-400	360-180	550	60	Bar Mill	Geared	1926	Ludlum Steel Co.	Watervliet, N. Y.	GE
1004	800-400	360-180	550	60	Bar Mill	Geared	1926	Ludlum Steel Col.	Warervliet, N. Y.	GE
1005	800	360-440	500	d.c.	Aluminum Mill	Geared	1919	U. S. Aluminum Co.	Marysville, Tenn.	W
1006	800	360-440	500	d.c.	Aluminum Mill	Geared	1919	U. S. Aluminum Co.	Marysville, Tenn.	W
1007	800	367	2200	25	8" Merchant Mill	Direct	1918	Donner Steel Co.	Buffalo, N. Y.	W
1008	800	370	650	d.c.	Aluminum Mill	Direct	1917	U. S. Aluminum Co.	Niagara Falls, N. Y.	W
1009	800	370-400	650	d.c.	Aluminum Mill	Direct	1919	U. S. Aluminum Co.	Niagara Falls, N. Y.	W
1010	800	375	2200	25	Sheet Mill, Cold Rolls	Geared	1919	Eastern Rolling Mills Co.	Baltimore, Md.	GE
1011	800	375	2200	25	Merchant Mill	Geared	1920	Bethlehem Steel Co.	Johnstown, Pa.	GE
1012	800	382-908	600	d.c.	10" Hot Strip	Direct	1929	Acme Steel Co.	Riverdale, Ill.	W
1013	800	382-908	600	d.c.	10" Hot Strip	Direct	1929	Acme Steel Co.	Riverdale, Ill.	W
1014	800-800	390-260	575	d.c.	6" Hot Strip Mill	Direct	1907	American Steel & Wire Co.	Cleveland, Ohio	GE
1015	800	400-600	600	d.c.	16" Merchant Mill	Geared	1921	Missouri Rolling Mills Co.	St. Louis, Mo.	W
1016	800	400-800	600	d.c.	Rod & Merchant Mill	Geared	1928	Atlantic Steel Co.	Atlanta, Ga.	GE
1017	800	410-720	230	d.c.	16" Merchant (Rough.)	Geared	1923	Timken Roller Bearing Co.	Canton, Ohio	W
1018	800	425-875	250	d.c.	12" Hoop Mill	Direct	1928	Carnegie Steel Co.	Youngstown, Ohio	W
1019	800	425-875	250	d.c.	12" Hoop Mill	Direct	1928	Carnegie Steel Co.	Youngstown, Ohio	W
1020	800	435	2200	60	No. 2 Hoop Mill	Geared	1925	Connors Steel Co.	Birmingham, Ala.	W
1021	800	440	2200	60	18" Merchant (Finishing)	Geared	1918	Canton Sheet Steel Co.	Canton, Ohio	W
1022	800	443	2200	60	Roughing Mill	Coupled	1921	International Nickel Co.	Huntington, W. Va.	AC
1023	800	443	2200	60	Copper Mill	Geared	1928	American Brass Co.	Kenosha, Wis.	AC
1024	800	450	2200	60	14" Merchant Mill	Geared	1921	International Nickel Co.	Huntington, W. Va.	AC
1025	800	450	2200	60	Wire Rod Mill	Coupled	1919	Black Steel & Wire Co.	Kansas City, Mo.	AC
1026	800-400	450-225	2200	60	Copper Mill	Direct	1925	Anaconda Copper Mining Co.	Montana	GE
1027	800	450	2200	60	8" Strip Mill	Direct	1928	Superior Steel Corporation	Carnegie, Pa.	W
1028	800	469-750	600	d.c.	Wire Rod Mill	Geared	1928	John A. Roebling's Sons	Trenton, N. J.	GE
1029	800	469-750	600	d.c.	Wire Rod Mill	Geared	1928	John A. Roebling's Sons	Trenton, N. J.	GE
1030	800	495	2200	25	Merchant	Geared	1929	Scullin Steel Co.	St. Louis, Mo.	W
1031	800	505	2200	60	9" Hot Strip Mill	Direct	1926	West Leechburg Steel Co.	West Leechburg, Pa.	W
1032	800	505	6600	60	Bar Plate Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
1033	800	505	6600	60	Bar Plate Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
1034	800	510-870	250	d.c.	10" Merchant Mill	Direct	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
1035	800	514	2200	60	Bar Mill	Geared	1919	Judson Mfg. Co.	Oakland, Calif.	AC
1036	800	535-750	600	d.c.	10" Wire Rod Mill	Geared	1926	American Steel & Wire Co.	Worcester, Mass.	W
1037	800	535-750	600	d.c.	10" Wire Rod Mill	Geared	1926	American Steel & Wire Co.	Worcester, Mass.	W
1038	800	585-292	6600	60	16" Hoop and Band Mill	Geared	1915	Weirton Steel Co.	Weirton, W. Va.	W
1039	800	600	2200	60	Hot & Cold Sheet Mill	Geared	1924	American Nickel Co.	Clearfield, Pa.	GE
1040	800	705	2200	60	12" Merchant Mill	Geared	1919	McConway-Torley Co.	Pittsburgh, Pa.	W
1041	800-363	706-320	600	d.c.	10" Rod Mill	Geared	1922	Wheeling Steel Corp.	Portsmouth, Ohio	GE

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1042	800-363	706-320	600	d.c.	10" Rod Mill	Geared	1922	Wheeling Steel Corp.	Portsmouth, Ohio	GE
1043	800-363	706-320	600	d.c.	10" Rod Mill	Geared	1922	Wheeling Steel Corp.	Portsmouth, Ohio	GE
1044	800	720	4600	60	Rolling Mill	Geared	1925	Mich. Copper & Brass Co.	Detroit, Mich.	AC
1045	800	720	4600	60	Rolling Mill	Geared	1925	Mich. Copper & Brass Co.	Detroit, Mich.	AC
1046	800	720	4600	60	Rolling Mill	Geared	1925	Mich. Copper & Brass Co.	Detroit, Mich.	AC
1047	800	720	4600	60	Rolling Mill	Geared	1925	Mich. Copper & Brass Co.	Detroit, Mich.	AC
1048	800	720	4600	60	Rolling Mill	Geared	1925	Mich. Copper & Brass Co.	Detroit, Mich.	AC
1049	800-800-800	720-600-480	2200	60	3-High Blooming Mill	Geared	1927	Copperweld Steel Co.	Glassport, Pa.	GE
1050	*800	720	2300	60	Copper Rod	Geared	1929	Standard Underground Cable Co.	Perth Amboy, N. J.	W
1051	800	730-365	2200	50	22" Bar Mill	Geared	1916	Columbia Steel Co.	Los Angeles, Cal.	W
1052	800	730-365	2200	50	12" Merchant Mill	Geared	1916	Columbia Steel Co.	Los Angeles, Cal.	W
1053	800	730-485	2200	50	12" Merchant Mill	Geared	1919	Southern Calif. Iron & Steel Co.	Los Angeles, Cal.	W
1054	800	760-1050	250	d.c.	10" Merchant Mill	Direct	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
1055	800	870	2200	60	Copper Rod Mill	Geared	1923	American Brass Company	Kenosha, Wis.	W
1056	800	870	2200	60	Copper Rod Mill	Geared	1923	American Brass Company	Kenosha, Wis.	W
1057	800	875-700	2200	60	16" Merchant Mill	Geared	1920	Kansas City Bolt & Nut Co.	Kansas City, Mo.	W
1058	800	880-490	2200	60	Bar Mill	Geared	1920	Knoxville Iron Co.	Knoxville, Tenn.	W
1059	800	892-623	2200	60	20" Merchant (Finishing)	Geared	1919	Hoosier Rolling Mills Co.	Terre Haute, Ind.	W
1060	800	900	440	60	Copper Rod Mill	Geared	1920	Western Electric Co.	Hawthorne, Ill.	GE
1061	800-800	900-720	2200	60	9" Merchant Mill	Geared	1923	Knoxville Iron Co.	Knoxville, Tenn.	GE
1062	800	900	2300	60	Rail Re-rolling Mill	Geared	1929	Sweets Steel Co.		GE
1063	800-800	900-720	2200	60	9" Merchant Mill	Geared	1923	Knoxville Iron Co.	Knoxville, Tenn.	GE
1064	840-700-560	360-300-240	6600	25	9" Merchant Mill	Direct	1925	Bethlehem Steel Co.	Bethlehem, Pa.	GE
1065	850-570	214-143	6600	25	Merchant Mill	Direct	1920	Illinois Steel Co.	Gary, Ind.	GE
1066	850-850	214-187	6600	25	10" Merchant Mill	Rope	1916	Illinois Steel Co.	Gary, Ind.	GE
1067	850-850	214-187	6600	25	10" Merchant Mill	Rope	1916	Illinois Steel Co.	Gary, Ind.	GE
1068	850	250-500	250	d.c.	10" Rod Mill	Direct	1927	Washburn Wire Co.	Phillipsdale, R. I.	W
1069	850	514	2200	60	14" Merchant Mill	Geared	1927	Copperweld Steel Co.	Glassport, Pa.	W
1070	850	505	2200	60	24" Bar (Roughing) Mill	Geared	1919	Central Steel Co.	Massillon, Ohio	W
1071	850	710	2200	60	20" Blooming Mill	Geared	1923	Washburn Wire Co.	Phillipsdale, R. I.	W
1072	900	94	2200	25	Jobbing Sheet Mill	Rope	1910	American Sheet & Tin Plate Co.	Gary, Ind.	GE
1073	900	94	2200	25	Jobbing Sheet Mill	Rope	1910	American Sheet & Tin Plate Co.	Gary, Ind.	GE
1074	900	150-300	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
1075	900	163	2200	60	Wire Rod Mill	Coupled	1917	Kokomo Steel & Wire Co.	Kokomo, Ind.	AC
1076	900	163	2200	60	Wire Rod Mill	Rope	1919	Black Steel & Wire Co.	Kansas City, Mo.	AC
1077	900-720	200-160	220	d.c.	Wheel Mill	Geared	1906	Bethlehem Steel Co.	Johnstown, Pa.	GE
1078	900-900	214-150	2200	25	12" Merchant Mill	Direct	1910	Algoma Steel Co.	Sault Ste. Marie,Can.	GE
1079	900-710-620	325-257-182	2300	60	10" Hoop Mill	Geared	1918	Acme Steel Goods Co.	Riverdale, Ill.	GE
1080	900	425-640	250	d.c.	12-10" Mill	Coupled	1925	Bethlehem Steel Co.	Johnstown, Pa.	AC
1081	900	900	440	60	Copper Rod Mill	Geared	1920	Western Electric Co.	Hawthorne, Ill.	GE
1082	975-375	650-250	600	d.c.	Rod (Roughing) Mill	Geared	1922	Atlantic Steel Co.	Atlanta, Ga.	W
1083	975-510	865-450	600	d.c.	Rod (Finishing) Mill	Direct & Belt	1922	Atlantic Steel Co.	Atlanta, Ga.	W
1084	1000	40-60	270	d.c.	28" Rev. Copper Mill	Direct	1927	Rome Brass & Copper Co.	Rome, N. Y.	GE
1085	1000	50-100	600	d.c.	24" Billet (Roughing)	Direct	1916	American Steel & Wire Co.	Cleveland, Ohio	W
1086	1000	50-175	600	d.c.	24" Mill	Direct	1916	Central Steel Co.	Massillon, Ohio	W
1087	*1000	79	6600	25	Tube Mill	Direct	1929	National Tube Co.	McKeesport, Pa.	W
1088	1000	83	2200	25	Sheet Mill	Rope	1910	Follansbee Bros.	Follansbee, W. Va.	GE
1089	1000	125	230	d.c.	Sheet Bar Mill	Geared	1920	Allegheny Steel Co.	Brackenridge, Pa.	GE
1090	1000	133	2200	25	Structural (Finishing)	Direct	1910	Illinois Steel Co.	South Chicago, Ill.	W
1091	1000	137	6600	25	Wheel Mill	Geared	1916	Illinois Steel Co.	Gary, Ind.	AC
1092	1000	145-327	600	d.c.	13" Skelp Mill	Direct	1928	National Tube Co.	McKeesport, Pa.	GE
1093	1000	175-350	250	d.c.	10" Merchant Mill	Direct	1929	Carpenter Steel Co.	Reading, Pa.	W
1094	1000	184	2200	25	16" Merchant Mill	Direct	1908	Bethlehem Steel Co.	Johnstown, Pa.	W
1095	1000	189-½	2200	60	Wire Mill	Direct	1928	American Steel & Wire Co.	Cleveland, Ohio	W
1096	1000	190-427	600	d.c.	13" Skelp Mill	Direct	1928	National Tube Co.	McKeesport, Pa.	GE
1097	1000	200-600	600	d.c.	10" Merchant Mill	Geared	1925	McKinney Steel Co.	Cleveland, Ohio	W
1098	1000	200-480	250	d.c.	12-9" Mill	Geared	1925	Bethlehem Steel Co.	Johnstown, Pa.	AC
1099	1000	200-480	250	d.c.	12-9" Mill	Geared	1925	Bethlehem Steel Co.	Johnstown, Pa.	AC
1100	1000-2000	200-400-600	250	d.c.	12-10" Gautier Mill	Geared	1925	Bethlehem Steel Co.	Johnstown, Pa.	AC
1101	1000	200-400	600	d.c.	14" Hot Strip Mill	Direct	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
1102	1000	200-400	250	d.c.	10" Merchant Mill	Direct	1929	Carpenter Steel Co.	Reading, Pa.	W
1103	1000	209	6600	25	14" Cont. Skelp Mill	Coupled	1924	Gary Tube Co.	Gary, Ind.	AC
1104	1000	210-510	230	d.c.	Bar Mill	Geared	1925	Donner Steel Co.	Buffalo, N. Y.	W
1105	1000	214 150	6400	25	24" Flat (Finishing) Mill	Direct	1916	American Steel & Wire Co.	Cleveland, Ohio	W
1106	1000	225-168	4000	60	Rail Rerolling Mill	Direct	1926	Inland Steel Co.	Indiana Harbor, Ind.	GE
1107	1000	225-168	4000	60	Rail Rerolling Mill	Direct	1926	Inland Steel Co.	Indiana Harbor, Ind.	GE
1108	1000	225	2300	60	Rail Mill	Geared	1928	West Virginia Rail Co.	Huntington, W. Va.	AC
1109	*1000	225	2300	60	Copper Rod Mill	Direct	1929	Standard Underground Cable Co.	Perth Amboy, N. J.	W
1110	1000	235	2200	60	Cold Rolled Tin Mill	Coupled	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	AC
1111	1000	235	2200	60	Cold Rolled Tin Mill	Coupled	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	AC
1112	1000	240	440	60	Sheet Mill	Geared	1918	Robertson Iron & Steel Co.	Springfield, Ohio	AC
1113	1000	240	220	60	Tube Mill	Geared	1919	Globe Seamless Tube Co.	Milwaukee, Wis.	AC
1114	1000	240	2200	60	Tube Mill	Rope & Direct	1917	Pittsburgh Seamless Tube Co.	Beaver Falls, Pa.	CW
1115	1000	235	2200	60	Cold Tin Mill	Geared	1928	Columbia Steel Co.	Pittsburgh, Cal.	W
1116	1000	245	2200	25	30" Sheet Jobbing Mill	Rope	1910	American Rolling Mills Co.	Middletown, Ohio	W
1117	1000	250	6600	25	Tin Mill	Geared	1919	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
1118	1000	250	6600	25	Tin Mill	Geared	1919	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
1119	1000	250	6600	25	Sheet Mill	Geared	1919	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
1120	1000	250	6600	25	Sheet Mill	Geared	1919	Bethlehem Steel Co.	Sparrows Point, Md.	GE
1121	1000	250	2200	60	18" Merchant Mill	Geared	1918	Canton Sheet Steel Co.	Canton, Ohio	W
1122	1000	250	2200	60	Sheet Mill	Geared	1920	American Rolling Mills Co.	Zanesville, Ohio	W
1123	1000	250	2200	25	Sheet Mill	Geared	1920	Otis Steel Co.	Cleveland, Ohio	AC
1124	1000	250	2200	25	Sheet Mill	Geared	1920	Otis Steel Co.	Cleveland, Ohio	AC
1125	1000	250-500	600	d.c.	14" Hot Strip Mill	Direct	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
1126	1000	250-500	250	d.c.	Strip Mill	Geared	1929	U. S. Aluminum Co.	Arnold, Pa.	W
1127	1000-400	257-128	550	60	9" Bar Mill No. 1	Geared	1926	Ludlum Steel Co.	Watervliet, N. Y.	GE
1128	1000	277	2200	60	Strip Mill	Geared	1919	American Tube & Stamping Co.	Bridgeport, Conn.	GE
1129	1000	290-500	600	d.c.	9" Merchant Mill	Geared	1926	Illinois Steel Co.	Gary, Indiana	GE
1130	1000	292	6600	25	9" Bar Mill	Direct	1928	Bethlehem Steel Co.	Johnstown, Pa.	W
1131	1000	293	6600	25	14" Cont. Skelp Mill	Geared	1924	Gary Tube Co.	Gary, Ind.	AC
1132	1000	295	2200	60	12" Cont. & 10" Merch.	Direct	1920	Kansas City Bolt & Nut Co.	Kansas City, Mo.	W
1133	1000	300	2200	25	10" Merchant Mill	Geared	1916	Halcomb Steel Co.	Syracuse, N. Y.	GE
1134	1000	300-150	2200	60	12" Merchant Mill	Direct	1918	Central Steel Co.	Massillon, Ohio	W
1135	1000	300	2200	60	Sheet Mill	Geared	1919	Superior Sheet Steel Co.	Canton, Ohio	GE
1136	1000	300	2200	60	Sheet Mill	Geared	1919	Superior Sheet Steel Co.	Canton, Ohio	GE
1137	1000	300	2200	60	Sheet Mill	Geared	1920	Milwaukee Rolling Mills Co.	Milwaukee, Wis.	GE
1138	1000	300	2200	60	Sheet Mill	Geared	1920	Milwaukee Rolling Mills Co.	Milwaukee, Wis.	GE
1139	1000	300	2200	25	Aluminum Rod Mill	Geared	1922	U. S. Aluminum Co.	Massena, N. Y.	GE
1140	1000	300-400	230	d.c.	Lap Welding Mill	Coupled	1923	Gary Tube Co.	Gary, Ind.	AC
1141	1000	300	2200	60	Sheet Mill	Geared	1925	Sharon Steel Hoop Co.	Sharon, Pa.	CW
1142	1000	300	2200	60	Sheet Mill	Geared	1925	Sharon Steel Hoop Co.	Sharon, Pa.	CW
1143	1000	300	2200	60	Sheet Mill	Geared	1925	Sharon Steel Hoop Co.	Sharon, Pa.	CW
1144	1000	300-600	600	d.c.	14" Hot Strip Mill	Direct	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
1145	1000	333	2200	50	36" Sheet Mill	Geared	1927	Columbia Steel Co.	Torrance, Calif.	GE
1146	1000	350-700	600	d.c.	12" Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
1147	1000	350-700	600	d.c.	12" Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
1148	1000	350-700	600	d.c.	12" Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
1149	1000	350-700	600	d.c.	12" Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
1150	1000	350-700	600	d.c.	12" Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1151	1000	350–450	600	d.c.	28″ Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
1152	1000	350–700	600	d.c.	14″ Hot Strip Mill	Direct	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
1153	*1000	360	2300	60	Copper Rod Mill	Direct	1929	Standard Underground Cable Co.	Perth Amboy, N. J.	W
1154	1000	360	2200	60	Sheet Mill	Geared	1929	Allegheny Steel Co.	Brackenridge, Pa.	GE
1155	1000	360	2200	60			1921	Tennessee Coal, Iron & R. R. Co.	Birmingham, Ala.	AC
1156	1000	365	2200	50	Merchant Mill	Geared	1923	Columbia Steel Co.	Torrence, Cal.	W
1157	1000	375	2200	25	Bar Mill	Geared	1913	Bethlehem Steel Co.	Johnstown, Pa.	AC
1158	1000	375	2200	25	Wheel Mill	Geared	1913	Bethlehem Steel Co.	Johnstown, Pa.	AC
1159	1000	375	6600	25	Piercing Mill	Geared	1925	National Tube Co.	Lorain, Ohio	AC
1160	1000	375	4400	25	Merchant Mill	Geared	1919	Buffalo Bolt Co.	N. Tonawanda, N. Y.	GE
1161	1000	375	2200	25	54″ Plate Mill	Geared	1927	Alan Wood Iron & Steel Co.	Conshohocken, Pa.	GE
1162	1000	375	6600	25	Tube Mill	Geared	1928	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
1163	1000	400–800	230	d.c.	10″ Merchant M	Geared	1928	Bourne Fuller Co.	Cleveland, Ohio	GE
1164	1000	435	2200	60	Hot Strip Mill	Geared	1924	American Tube & Stamping Co.	Bridgeport, Conn.	W
1165	1000	435	2200	60	Hot Strip Mill	Geared	1924	American Tube & Stamping Co.	Bridgeport, Conn.	W
1166	1000	450	2200	60	Piercing Mill	Geared	1918	Winchester Rep. Arms Co.	New Haven, Conn.	AC
1167	1000	450	2200	60	Bar Mill	Rope	1919	Pacific Coast Steel Co.	Seattle, Wash.	AC
1168	1000	450	2200	60	20″ Merchant Mill	Geared	1921	International Nickel Co.	Huntington, W. Va.	AC
1169	1000	450–900	600	d.c.	10″ Merchant Mill	Geared	1928	Steel Co. of Canada	Hamilton, Ont.	W
1170	*1000	514	4000	60	Brass Mill	Geared	1929	Riverside Metal Co.	Riverside, N. J.	GE
1171	1000	536–750	600	d.c.	10″ Merchant Mill	Geared	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
1172	1000	536–750	600	d.c.	10″ Merchant Mill	Geared	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
1173	1000	518–800	250	d.c.	20″ Merchant Mill	Geared	1919	National Farming Machinery, Ltd.	Montmagny, P. Q.	W
1174	1000	585	6600	60	Bar Plate Mill	Geared	1927	American Rolling Mill	Middletown, Ohio	W
1175	1000	590–495	6600	60	24″ Structural Mill	Geared	1917	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	W
1176	1000	590–450	4000	60	14″ Merchant Mill	Geared	1920	Calumet Steel Co.	Chicago, Ill.	W
1177	1000	590–450	4000	60	14″ Merchant Mill	Geared	1920	Calumet Steel Co.	Chicago, Ill.	W
1178	1000	600	2200	60	16″ Skelp Mill	Geared	1923	Elyria Iron & Steel Co.	Elyria, Ohio	GE
1179	1000	600	2300	60	Copper Mill	Geared	1925	American Copper Products Co.	Elizabeth, N. J.	GE
1180	1000	600	2200	60	Hot and Cold Sheet Mills	Geared	1925	American Nickel Corp.	Clearfield, Pa.	GE
1181	1000	705	2200	60	16″ Strip Mill	Geared	1920	Central Steel Co.	Massillon, Ohio	W
1182	1000	720	4000	60	18″ 2-Stand Rerolling Rail Mill	Geared	1923	Buckeye Rolling Mill Co.	Newark, Ohio	GE
1183	1000	710	2200	60	20″ Special Bar Mill	Geared	1925	Rail Joint Company	Troy, N. Y.	W
1184	1000	710	2200	60	20″ Special Bar Mill	Geared	1925	Rail Joint Company	Troy, N. Y.	W
1185	1000	720	6600	60	Rod Mills Nos. 8 and 9	Geared	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
1186	1000	720	2300	60	Sheet Mill	Geared	1929	Sessions Engr. Co.	Chicago, Ill.	W
1187	1000	725	440	25	Copper Rod Mill	Geared	1929	Safety Cable Co.	Baltimore, Md.	W
1188	1000	720	6600	60	Rod Mill No. 7	Geared	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
1189	1000	725	2200	25	12″ Merchant Mill	Geared	1922	Burlington Steel Co., Ltd.	Hamilton, Ont.	W
1190	1000	885	2200	60	Rail Re-rolling	Geared	1928	Danville Structural Co.	Danville, Ky.	W
1191	1000	900	2200	60		Geared	1929	Knoxville Iron Co.	Knoxville, Tenn.	GE
1192	1100–1500	91	2200	25	84″ Plate (Fin.) Mill	Direct	1909	American Sheet & Tin Plate Co.	Gary, Ind.	W
1193	1100	214–320	600	d.c.	12″ Skelp Mill	Direct	1926	Bethlehem Steel Co.	Sparrows Pt., Md.	W
1194	1100	240–382	600	d.c.	12″ Skelp Mill	Direct	1926	Bethlehem Steel Co.	Sparrows Pt., Md.	W
1195	1100	294–205	2200	60	20″ Merchant Mill	Rope	1912	United Alloy Steel Corporation	Canton, Ohio	W
1196	1125–900–675	312–250–187	6600	25	12″ Strip Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	GE
1197	1150	250	6600	25	Jobbing Sheet Mill	Geared	1913	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
1198	1180–955–705	560–450–336	2200	60	Rod Mill	Belt	1916	Keystone Steel & Wire Co.	Peoria, Ill.	GE
1199	1190–875–525	350–250–150	2200	25	Merchant Mill	Direct-Rope	1925	Bethlehem Steel Co.	Lebanon, Pa.	GE
1200	1200	25–50	330	d.c.	Reversing Plate Mill	Direct	1926	Lukens Steel Co.	Coatesville, Pa.	GE
1201	1200	112.5	2200	60	Tube Mill	Geared	1928	Globe Steel Tube Co.	Milwaukee, Wis.	AC
1202	1200	120	2300	60	Hot Strip Mill	Direct	1929	American Tube & Stamping Co.	Bridgeport, Conn.	W
1203	1200	125–275	600	d.c.	10″ Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, Ohio	W
1204	1200–1200	150–250	230	d.c.	12″ Merchant Mill	Direct	1920	Timken Roller Bearing Co.	Canton, Ohio	GE
1205	1200	140–225	600	d.c.	20″ Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
1206	1200	150–300	230	d.c.	Piercing Mill	Geared	1929	Timken Roller Bearing Co.	Canton, Ohio	GE
1207	1200	160–320	250	d.c.	12″ Merchant Mill	Direct	1926	Pittsburgh Crucible Steel Co.	Midland, Pa.	GE
1208	1200	200	2200	60	Piercing Mill	Rope	1919	Ohio Seamless Tube Co.	Shelby, Ohio	GE
1209	1200	200–400	230	d.c.	14″ Band Mill	Direct	1926	Sharon Steel Hoop Co.	Sharon, Pa.	W
1210	1200	200–400	230	d.c.	14″ Band Mill	Direct	1926	Sharon Steel Hoop Co.	Sharon, Pa.	W
1211	1200	214	2200	25	84″ Plate Mill	Geared	1913	Otis Steel Co.	Cleveland, Ohio	GE
1212	1200	214	2200	25	Jobbing Sheet Mill	Geared	1913	Otis Steel Co.	Cleveland, Ohio	GE
1213	1200	240	440	25	26″ Sheet Mill	Rope	1907	Seneca Iron & Steel Co.	Buffalo, N. Y.	W
1214	1200	240	2200	60	Sheet Mill	Geared	1915	Empire Rolling Mills	Cleveland, Ohio	GE
1215	1200	240	2200	60	Hot Sheet Mill	Coupled	1916	Standard Tin Plate Co.	Canonsburg, Pa.	CW
1216	1200	240	2200	60	Sheet Mill	Geared	1916	Mahoning Valley Steel Co.	Niles, Ohio	GE
1217	1200	240	2200	60	Sheet Mill	Geared	1916	United Alloy Steel Corp.	Canton, Ohio	GE
1218	1200	240	2200	60	Sheet Mill	Geared	1917	United Alloy Steel Corp.	Canton, Ohio	GE
1219	1200	240	2200	60	Sheet Mill	Geared	1920	Republic Iron & Steel Co.	Youngstown, Ohio	GE
1220	1200	240	2200	60	Sheet Mill	Geared	1920	Republic Iron & Steel Co.	Youngstown, Ohio	GE
1221	1200	240	2200	60	Hot Sheet Mill	Coupled	1915	Standard Tin Plate Co.	Canonsburg, Pa.	CW
1222	1200	240	2200	60	Hot Sheet Mill	Coupled	1915	Standard Tin Plate Co.	Canonsburg, Oa.	CW
1223	1200	240	2200	60	Hot Sheet Mill	Coupled	1915	Standard Tin Plate Co.	Canonsburg, Pa.	CW
1224	1200	240	2200	60	Hot Sheet Mill	Coupled	1915	Standard Tin Plate Co.	Canonsburg, Pa.	CW
1225	1200	240	2200	60	Hot Sheet Mill	Coupled	1915	Standard Tin Plate Co.	Canonsburg, Pa.	CW
1226	1200	240–500	600	d.c.	10″ Rod Mill	Direct	1929	Sheffield Steel Co.	Kansas City, Mo.	W
1227	1200	244	2200	25	Sheet Mill	Geared	1917	Bethlehem Steel Co.	Sparrows Pt., Md.	W
1228	1200	244	2200	25	Sheet Mill	Geared	1917	Bethlehem Steel Co.	Sparrows Pt., Md.	W
1229	1200	244	2200	25	Sheet Mill	Geared	1920	American Rolling Mills Co.	Middletown, Ohio	W
1230	1200	244	2200	25	Sheet Mill	Geared	1920	American Rolling Mills Co.	Middletown, Ohio	W
1231	1200	244	2200	25	Sheet Mill	Geared	1926	American Rolling Mills	Middletown, Ohio	W
1232	1200	244	2200	25	Sheet Mill	Geared	1926	American Rolling Mills	Middletown, Ohio	W
1233	1200	250–500	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
1234	1200	250–500	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
1235	1200	250–550	600	d.c.	16″–9″ Skelp Mill	Direct	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
1236	1200	277	2200	60	Sheet Mill	Geared	1925	Wheeling Steel Corp.	Wheeling W. Va.	GE
1237	1200	257	4600	60	Tube Mill	Rope & Coupled	1918	Detroit Seamless Tube Co.	Detroit, Mich.	AC
1238	1200	292	2200	25	12″ Continuous and 10″ Merchant Mill	Direct & Rope	1912	Laclede Steel Co.	Alton, Ill.	W
1239	1200	294	2200	60	Tube Rolling Mill	Geared	1915	National Tube Co.	Ellwood City, Pa.	W
1240	1200	294	2200	60	Rolling Mill	Geared	1917	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind	W
1241	1200	295	6600	60	Sheet Mill	Coupled	1922	Weirton Steel Co.	Weirton, W. Va.	AC
1242	1200	295	6600	60	Sheet Mill	Coupled	1922	Weirton Steel Co.	Weirton, W. Va.	AC
1243	1200–1150–800	300–214–150	2200	25	Merchant Mill, No. 10	Geared	1916	Bethlehem Steel Co.	Lackawanna, N.Y.	GE
1244	1200–1000–800	300–250–200	4400	25	14″ Merchant Mill	Direct	1919	Buffalo Bolt Co.	N. Tonawanda, N. Y.	GE
1245	1200	300	4100	60	Sheet Mill	Geared	1920	Chapman Price Steel Co.	Indianapolis, Ind.	GE
1246	1200	300	2200	60	Sheet Mill	Geared	1920	Central Steel Co.	Massillon, Ohio	GE
1247	1200	300	2200	60	Sheet Mill	Geared	1920	Central Steel Co.	Massillon, Ohio	GE
1248	1200	300	2200	60	Sheet Mill	Geared	1924	Thomas Sheet Steel Co.	Niles, Ohio	GE
1249	1200	300	2200	60	Sheet Mill	Geared	1924	Thomas Sheet Steel Co.	Niles, Ohio	GE
1250	1200	300–500	600	d.c.	10″ Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	W
1251	1200	300–600	230	d.c.	12″–9″ Merchant Mill	Geared	1928	Timken Roller Bearing Co.	Canton, Ohio	AC
1252	1200–1200–865	340–277–200	2200	60	11″ Merchant Mill	Geared	1927	Bourne Fuller Co.	Cleveland, Ohio	GE
1253	1200	352	2200	60	Sheet Mill	Rope	1917	Mansfield Sheet & Tin Plate Co.	Mansfield, Ohio	W
1254	1200	360	2200	60	Morgan Wire Rod Mill	Geared	1918	Interstate Iron & Steel Co.	Chicago, Ill.	AC
1255	1200	360	2200	60	30″ Sheet Mill	Geared	1921	International Nickel Co.	Huntington, W. Va.	AC
1256	1200	360	2200	60	24″ Bar Mill	Geared	1921	International Nickel Co.	Huntington, W. Va.	AC
1257	1200	367	2200	25	Cold Rolling Mill	Geared	1917	Bethlehem Steel Co.	Sparrows Pt., Md.	W

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1258	1200	368	2200	60	20" Merchant Mill	Geared	1919	Southern Calif. Iron & Steel Co.	Los Angeles, Cal.	W
1259	1200	375	440	25	Brass & Copper Mill	Geared	1928	American Smelting & Refining Co.	Baltimore, Md.	GE
1260	1200	400	650	d.c.	Aluminum Plate Mill	Geared	1915	Aluminum Company of America	Niagara Falls, N. Y.	GE
1261	1200-1000-800	450-375-300	6600	25	8" Hoop Mill, No. 8	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
1262	1200-1000-800	450-375-300	6600	25	8" Hoop Mill, No. 9	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
1263	1200-1000-800	450-375-300	6600	25	8" Bar Mill, No. 16	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
1264	1200-1200-1200	450-360-270	2300	60	9" Hot Strip Mill	Geared	1916	Trumbull Steel Co.	Warren, Ohio	GE
1265	1200-1200-1200	450-360-270	2300	60	9" Hot Strip Mill	Geared	1916	Trumbull Steel Co.	Warren, Ohio	GE
1266	1200-1200-1200	450-360-270	2300	60	9" Hot Strip Mill	Direct	1916	Trumbull Steel Co.	Warren, Ohio	GE
1267	1200-1000-800	450-375-300	6600	25	18" Band Mill, No. 13	Geared	1919	Carnegie Steel Co.	Youngstown, Ohio	GE
1268	1200	450	6600	60	Rail Mill Finishing Stand	Geared	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
1269	1200	485	6400	25	12" Merchant Mill	Geared	1916	American Steel & Wire Co.	Cleveland, Ohio	W
1270	1200	500	2200	25	28" Rail Mill	Geared	1914	Bethlehem Steel Co.	Steelton, Pa.	GE
1271	1200	500	2200	25	72" Jobbing Plate Mill	Geared	1926	Alan Wood Iron & Steel Co.	Coshocton, Pa.	GE
1272	1200	505-303	6600	60	16" Band Mill	Geared	1919	Weirton Steel Co.	Weirton, W. Va.	W
1273	1200	505	2200	60	29" Bar (Roughing) Mill	Geared	1922	Youngstown Steel Co.	Youngstown, Ohio	W
1274	1200	514	2200	60	Bar Mill	Geared	1917	Elyria Iron & Steel Co.	Elyria, Ohio	AC
1275	1200	514	2200	60	Wire Rod Mill	Geared	1917	Kokomo Steel & Wire Co.	Kokomo, Ind.	AC
1276	1200	514	2200	60	8" Merchant Mill	Geared	1928	Timken Roller Bearing Co.	Canton, Ohio	GE
1277	1200	520-575	230	d.c.	Rod Mill	Direct	1928	Gulf States Steel Co.	Alabama City, Ala.	W
1278	1200	590	2200	60	22" Strip Mill	Geared	1919	Harrisburg Pipe & Pipe Bending Co	Harrisburg, Pa.	W
1279	1200	590	2200	60	24" Blooming Mill	Geared	1919	McConway-Torley Co.	Pittsburgh, Pa.	W
1280	1200	590-450	2200	60	Duo and Bull Head Mill	Geared	1916	Central Steel Co.	Massillon, Ohio	W
1281	1200	590-407	2200	60	20" Merchant (Roughing)	Geared	1918	Hoosier Rolling Mill Co.	Terre Haute, Ind.	W
1282	1200	585	2200	60	22" Billet Mill	Geared	1929	Tulsa Rolling Mill	Tulsa, Okla.	W
1283	1200	600-400	2200	60	18" Merchant Mill	Geared	1929	Manitoba Bridge & Iron Works	Calgary, Can.	GE
1284	1200	705	6600	60	Bar Plate Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
1285	1250	103-253	600	d.c.	Strip Mill	Direct	1928	Sharon Steel Hoop Co.	Sharon, Pa.	GE
1286	1250	137-326	600	d.c.	Strip Mill	Direct	1928	Sharon Steel Hoop Co.	Sharon, Pa.	GE
1287	1250	175-413	600	d.c.	Strip Mill	Direct	1928	Sharon Steel Hoop Co.	Sharon, Pa.	GE
1288	1250	175-400	230	d.c.	Rod Mill	Direct	1915	United Alloy Steel Corporation	Canton, Ohio	W
1289	1250-1250	175-350	600	d.c.	14" Hot Strip Mill	Geared	1920	Trumbull Steel Co.	Warren, Ohio	GE
1290	1250-1250	175-350	600	d.c.	14" Hot Strip Mill	Geared	1920	Trumbull Steel Co.	Warren, Ohio	GE
1291	1250	200-500	600	d.c.	Strip Mill	Direct	1928	Sharon Steel Hoop Co.	Sharon, Pa.	GE
1292	1250	250-580	600	d.c.	Strip Mill	Direct	1928	Sharon Steel Hoop Co.	Sharon, Pa.	GE
1293	1250	250	6600	25	Hot Tin Mill	Geared	1924	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
1294	1250	250	6600	25	Hot Tin Mill	Geared	1924	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
1295	1250	250	6600	25	Cold Tin Mill	Geared	1924	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
1296	1250	250	6600	25	Sheet Mill	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	GE
1297	1250	250	6600	25	Hot Tin Mill	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	GE
1298	1250	250	6600	25	Hot Tin Mill	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	GE
1299	1250	250	6600	25	Cold Tin Mill	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	GE
1300	1250	294	6600	25	14" Cont. Skelp Mill	Coupled	1924	Gary Tube Co.	Gary, Ind.	AC
1301	1250	300	6600	25	Steel Mill	Geared	1925	American Sheet & Tin Plate Co.	Wellsville, Ohio	AC
1302	1250	300-550	500	d.c.	10" Merchant Mill	Direct	1927	Ford Motor Co.	Detroit, Mich.	W
1303	1250	312-625	600	d.c.	Strip Mill	Direct	1928	Sharon Steel Hoop Co.	Sharon, Pa.	GE
1304	1250	375	2080	25	18" Billet Mill	Geared	1918	Wickwire Spencer Steel Co.	Buffalo, N. Y.	GE
1305	1250	375	2080	25	18" Billet Mill	Geared	1918	Wickwire Spencer Steel Co.	Buffalo, N. Y.	GE
1306	1250	375	2200	25	Merchants Bar Mill	Geared	1919	Valley Steel Co.	Milwaukee, Wis.	AC
1307	1250-1000-650	650-500-325	2200	25	Rod Mill	Belt	1916	Wickwire Spencer Steel Co.	Buffalo, N. Y.	GE
1308	1250	712-430	6600	60	3 Stand 12" Mill	Coupled	1921	Tennessee Coal, Iron & R. R. Co.	Birmingham, Ala.	AC
1309	1300-900	214-140	2200	25	12" Merchant Mill	Direct	1912	Gulf States Steel Co.	Birmingham, Ala.	GE
1310	1300-1300	214-187	6600	25	10" Merchant Mill	Geared	1916	Illinois Steel Co.	Gary, Ind.	GE
1311	1300	257	6600	60	Rod Mill	Direct	1928	Gulf States Steel Co.	Alabama City, Ala.	W
1312	1300	360	2200	60	Wire Rod Mill	Coupled	1917	Kokomo Steel & Wire Co.	Kokomo, Ind.	AC
1313	1300	500	6600	25	Rod (Finishing) Mill	Rope	1912	American Steel & Wire Co.	Birmingham, Ala.	W
1314	1350-1000	214-161	4400	25	Rail Rerolling Mill	Direct	1926	Buffalo Steel Co.	Tonawanda, N. Y.	GE
1315	1350-1000	214-161	4400	25	Rail Rerolling Mill	Direct	1926	Buffalo Steel Co.	Tonawanda, N. Y.	GE
1316	1350	600	2300	60	Copper Mill	Geared	1918	American Brass Company	Waterbury, Conn.	GE
1317	1400-900	40-60-190	600	d.c.	10" Merchant Mill	Geared	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
1318	1400	240	2200	60	Sheet Mill	Geared	1912	Apollo Steel Co.	Apollo, Pa.	GE
1319	1400	450-550	500	d.c.	12" Spring Mill	Coupled	1926	Ford Motor Co., Fordson Plant	Detroit, Mich.	AC
1320	1400	505	2200	60	14" Billet Mill	Geared	1917	Wickwire Spencer Steel Corp.	Palmer, Mass.	W
1321	1400-945	600-405	2200	60	21" Merchant Mill	Geared	1915	Bourne-Fuller Co.	Cleveland, Ohio	GE
1322	1500	50-80	600	d.c.	Cont. Merchant Mill	Direct	1925	Inland Steel Co.	Indiana Harbor, Ind.	GE
1323	1500	62-½	6600	25	Tube Rolling Mill	Coupled	1926	Gary Tube Co.	Gary, Indiana	AC
1324	1500	62-½	6600	25	Tube Mill	Direct	1927	National Tube Co.	Lorain, Ohio	AC
1325	1500	65-225	750	d.c.	48" Rev. Structural Mill	Direct	1926	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
1326	1500	65-225	750	d.c.	48" Rev. Structural Mill	Direct	1926	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
1327	1500	80	2200	60	Morgan Continuous Mill	Coupled	1920	Interstate Iron & Steel Co.	Chicago, Ill.	AC
1328	1500	94	2200	25	18" Merchant Mill	Direct	1910	Algoma Steel Co.	Sault Ste. Marie, Can.	GE
1329	1500	100-125	220	d.c.	Light Rail Mill	Direct	1905	Carnegie Steel Co.	Bessemer, Pa.	W
1330	1500	100-125	220	d.c.	Light Rail Mill	Direct	1905	Carnegie Steel Co.	Bessemer, Pa.	W
1331	1500	100-150	600	d.c.	14" Merchant Mill	Direct	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
1332	1500	110-300	600	d.c.	14"-18" Merchant Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
1333	1500	110-300	600	d.c.	14"-18" Merchant Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
1334	1500	125-250	230	d.c.	14" Band Mill	Direct	1914	Sharon Steel Hoop Co.	Sharon, Pa.	W
1335	1500	125-250	240	d.c.	Strip Mill	Geared	1922	West Leechburg Steel Co.	Leechburg, Pa.	W
1336	1500	125-250	240	d.c.	Strip Mill	Geared	1922	West Leechburg Steel Co.	Leechburg, Pa.	W
1337	1500	133-81.5	6600	25	18" Structural Mill	Direct	1915	Bethlehem Steel Co.	So. Bethlehem, Pa.	W
1338	1500	137-275	600	d.c.	Rod Mill	Direct	1928	Sheffield Steel Corp.	Kansas City, Mo.	W
1339	1500	133-338	600	d.c.	10" Merchant Mill	Direct	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
1340	1500	135-337	600	d.c.	10" Merchant Mill	Geared	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
1341	1500	140-280	600	d.c.	18"-16" Skelp Mill	Direct	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
1342	1500	150	6600	60	Wide Strip Mill	Geared	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
1343	1500	150	6600	25	Wire Rod Mill	Coupled	1914	Illinois Steel Co.	Joliet, Ill.	AC
1344	1500	150-300	250	d.c.	18-14" Structural Mill	Direct	1924	Bethlehem Steel Co.	Johnstown, Pa.	AC
1345	1500	150-300	250	d.c.	18-14" Structural Mill	Direct	1924	Bethlehem Steel Co.	Johnstown, Pa.	AC
1346	1500	150-300	600	d.c.	21" Sheet Bar Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
1347	1500	150-300	600	d.c.	21" Sheet Bar Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
1348	1500	164	2200	60	Hot Strip Mill	Direct	1928	Danville Structural Steel Co.	Danville, Pa.	EM
1349	1500	164	2200	60	Hot Strip Mill	Direct	1928	Danville Structural Steel Co.	Danville, Pa.	EM
1350	1500	180	2300	60	Hot Strip Mill	Direct	1929	American Tube & Stamping Co.	Bridgeport, Conn.	W
1351	1500	182-162	6600	25	10" Bar Mill	Direct & Rope	1913	Carnegie Steel Co.	Duquesne, Pa.	W
1352	1500	187	2200	25	Sheet Mill	Chain	1914	National Enamel & Stamping Co.	Granite City, Ill.	AC
1353	1500	198-400	600	d.c.	10" Strip Mill	Rope & Direct	1926	LacLede Steel Co.	Alton, Ill.	W
1354	1500	200	6600	60	Strip Sheet Mill	Geared	1926	Weirton Steel Co.	Weirton, W. Va.	GE
1355	1500	200-400	600	d.c.	20"-16" Hot Strip Mill	Geared	1925	Acme Steel Co.	Chicago, Ill.	W
1356	1500	200-300	600	d.c.	10" Merchant Mill	Direct	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
1357	1500	200-500	600	d.c.	Seamless Tube Mill	Direct	1928	National Tube Co.	Gary, Ind.	AC
1358	1500	200-500	600	d.c.	Seamless Tube Mill	Direct	1928	National Tube Co.	Gary, Ind.	AC
1359	1500	200-600	600	d.c.	Rod Mill	Geared	1928	Sheffield Steel Corp.	Kansas City, Mo.	W
1360	1500	210	2200	25	30" Sheet Mill	Rope	1910	American Rolling Mill Co.	Middletown, Ohio	W
1361	1500	218-145	6600	25	18" Merchant Mill	Geared	1916	Carnegie Steel Co.	Duquesne, Pa.	W
1562	1500	220-440	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
1363	1500	234	2200	60	Sheet Mill	Geared	1915	Canton Sheet & Steel Co.	Canton, Ohio	W
1364	1500	234	2200	60	Sheet Mill	Geared	1916	Mansfield Sheet & Tin Plate Co.	Mansfield, Ohio	W
1365	1500	234	220	60	26" Sheet Bar Mill	Geared	1916	Canton Sheet Steel Co.	Canton, Ohio	W
1366	1500	234	2200	60	Sheet Mill	Geared	1917	Liberty Steel Co.	Warren, Ohio	W

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1367	1500	234	2200	60	Sheet Mill	Geared	1919	Mansfield Sheet & Tin Plate Co.	Mansfield, Ohio	W
1368	1500	234	2200	60	10″ Rod Mill	Geared	1921	Columbia Steel Co.	Pittsburgh, Cal.	W
1369	1500	240	2200	60	Sheet Mill	Geared	1919	Follansbee Bros.	Toronto, Ohio	AC
1370	1500	240	2200	60	Sheet Mill	Geared	1919	Follansbee Bros.	Toronto, Ohio	AC
1371	1500	240	2200	60	Sheet Mill	Geared	1920	Central Alloy Steel Co.	Canton, Ohio	AC
1372	1500	240	2200	60	Sheet Mill	Geared	1922	Central Alloy Steel Co.	Canton, Ohio	GE
1373	1500	250	2200	25	Sheet Mill	Geared	1919	Eastern Rolling Mills Co.	Baltimore, Md.	GE
1374	1500	250	2200	25	Sheet Mill	Geared	1919	Eastern Rolling Mills Co.	Baltimore, Md.	GE
1375	1500	250–565	600	d.c.	13″ Skelp Mill	Direct	1928	National Tube Co.	McKeesport, Pa.	GE
1376	1500	257	2200	25	10″ Hot Strip Mill	Direct	1919	Superior Steel Co.	Carnegie, Pa.	GE
1377	1500	270	2200	60	Sheet Mill	Geared	1914	Youngstown Sheet & Tube Co.	Warren, Ohio	W
1378	1500	270	2200	60	24″ Sheet Bar & Billet Mill	Geared	1914	Central Steel Co.	Massillon, Ohio	W
1379	1500	270	2200	60	Lamberton Rod Mill	Geared	1915	United Alloy Steel Corporation	Canton, Ohio	W
1380	1500	270	2200	60	22″ Bar and Billet Mill	Geared	1918	Central Steel Co.	Massillon, Ohio	W
1381	1500	277	2200	60	22″ Skelp Mill	Direct	1924	Bethlehem Steel Corp.	Coatesville, Pa.	GE
1382	1500–1500	280–420	600	d.c.	20″ Hot Strip Mill	Direct	1922	Otis Steel Co.	Cleveland, Ohio	GE
1383	1500–1500	280–420	600	d.c.	20″ Hot Strip Mill	Direct	1922	Otis Steel Co.	Cleveland, Ohio	GE
1384	1500–1500	280–420	600	d.c.	20″ Hot Strip Mill	Direct	1922	Otis Steel Co.	Cleveland, Ohio	GE
1385	1500	295	2200	60	Sheet Mill	Geared	1924	Kansas City Bolt & Nut Co.	Kansas City, Mo.	AC
1386	1500	300	4600	60	Sheet Mill	Geared	1922	Michigan Steel Corp.	Detroit, Mich.	GE
1387	1500	300	4600	60	Sheet Mill	Geared	1924	Michigan Steel Corp.	Detroit, Mich.	GE
1388	1500–1250–875	300–250–175	2200	50	Merchant Mill	Direct	1925	Southern Calif. Iron & Steel Co.	Los Angeles, Cal.	GE
1389	1500	300	2200	60	Sheet Mill	Geared	1929	Continental Steel Co.	Kokomo, Ind.	GE
1390	1500	300–681	600	d.c.	10″ Merchant Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
1391	1500	315–630	600	d.c.	13″ Skelp Mill	Direct	1928	National Tube Co.	McKeesport, Pa.	GE
1392	1500–1200–900	320–275–200	2200	60	10″ Merchant Mill	Geared	1925	Pacific Coast Steel Co.	So. San Fran., Cal.	GE
1393	1500	322–193	2200	60	18″ Sheet Bar Mill	Geared	1926	Columbia Steel Co.	Pittsburgh, Calif.	W
1394	1500	325–450	600	d.c.	10″ Strip Mill	Direct	1928	Superior Steel Corp.	Carnegie, Pa.	W
1395	1500	355	2200	60	35″ Blooming Mill	Geared	1924	Timken Roller Bearing Co.	Canton, Ohio	AC
1396	1500	360–240	6600	25	12″ Merchant Mill	Rope	1916	Carnegie Steel Co.	Duquesne, Pa.	W
1397	1500	360	6400	25	Billet Mill	Geared	1916	American Steel & Wire Co.	Cleveland, Ohio	W
1398	1500	360	2200	60	10″ Hot Strip Mill	Direct	1919	Superior Steel Co.	Carnegie, Pa.	GE
1399	1500–1250–1000	360–300–240	2200	25	28″ Rail Mill	Geared	1920	Bethlehem Steel Co.	Steelton, Pa.	GE
1400	1500	360	4000	60	Sheet Mill	Geared	1923	Pacific Sheet Steel Corp.	So.San Francisco,Cal.	GE
1401	1500	360	2200	60	Sheet Mill	Geared	1923	Columbia Steel Co.	Pittsburgh, Cal.	GE
1402	1500	368	2200	25	Sheet Bar (Finishing) Mill	Geared	1923	Inland Steel Co.	Chicago, Ill.	W
1403	1500–1125	375–281	2200	25	10″ Merchant Mill	Geared	1916	Donner Steel Co.	Buffalo, N. Y.	GE
1404	1500	375	2200	25	26″ 3 high Blooming Mill	Geared	1920	Atlas Crucible Steel Co.	Dunkirk, N. Y.	GE
1405	1500	375	6600	25	Tube Rolling Mill	Geared	1927	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
1406	1500	435	2200	60	Sheet Bar Mill	Geared	1929	Carnegie Steel Co.	Mingo Junction, O.	W
1407	1500	440	2200	60	22″ Bar Mill	Geared	1919	Kansas City Bolt & Nut Co.	Kansas City, Mo.	W
1408	1500	450	2200	30	3 High Skelp Mill	Geared	1915	Spang Chalfant Co.	Etna, Pa.	GE
1409	1500–1500–1200	450–360–270	2300	60	16″ Strip Mill	Geared	1916	Trumbull Steel Co.	Warren, Ohio	GE
1410	1500	450	2200	60	Roughing Mill	Geared	1919	Pacific Coast Steel Co.	San Francisco, Calif.	AC
1411	1500	450	2200	60	Bar Mill	Rope	1919	Pacific Coast Steel Co.	Seattle, Wash.	AC
1412	1500	450	2200	60	9″ Rod Mill	Direct	1926	Washburn Wire Co.	Philipsdale, R. I.	W
1413	1500	450	6600	60	Strip Sheet Mill	Geared	1926	Weirton Steel Co.	Weirton, W. Va.	GE
1414	1500	450	6600	60	Strip Sheet Mill	Geared	1926	Weirton Steel Co.	Weirton, W. Va.	GE
1415	1500	450–550	600	d.c.	Rod Mills Nos. 16, 18	Direct	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
1416	1500–1200–900	468–375–281	6600	25	12″ Strip Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	GE
1417	1500	470–510	230	d.c.	Rod Mill	Direct	1923	John A. Roebling Sons	New York, N. Y.	W
1418	1500	491	6600	25	14″ Cont. Skelp Mill	Geared	1924	Gary Tube Co.	Gary, Ind.	AC
1419	1500	505	6600	60	16″ Hoop and Band Mill	Geared	1915	Weirton Steel Co.	Weirton, W. Va.	W
1420	1500	257–508	6600	60		Coupled	1924	Weirton Steel Co.	Weirton, W. Va.	AC
1421	1500	508	6600	60	Steel Mill	Geared	1924	Weirton Steel Co.	Weirton, W. Va.	AC
1422	1500	514	2200	60	Wire Rod Mill	Coupled	1917	Kokomo Steel & Wire Co.	Kokomo, Ind.	AC
1423	1500	514	6600	60	Hot Strip Mill	Geared	1917	Weirton Steel Co.	Weirton, W. Va.	AC
1424	1500–1500	514–237	6600	60	Hot Strip Mill	Geared	1917	Weirton Steel Co.	Weirton, W. Va.	AC
1425	1500	593	6600	60	6 Stand 11″ Mill	Coupled	1921	Tennessee Coal, Iron & R. R. Co.	Birmingham, Ala.	AC
1426	1500	600	2200	60	Light Rail Mill	Geared	1919	West Virginia Rail Co.	Huntington, W. Va.	AC
1427	1500	705	2200	60	Strip Mill	Geared	1922	West Leechburg Steel Co.	Leechburg, Pa.	W
1428	1500	705	2200	60	Strip Mill	Geared	1922	West Leechburg Steel Co.	Leechburg, Pa.	W
1429	1500	705	2200	60	24″ Bar (Finishing) Mill	Geared	1922	Youngstown Steel Co.	Youngstown, Ohio	W
1430	1500	705	2200	60	Skelp Mill Scarfing Stand	Geared	1923	Bethlehem Steel Corp.	Coatesville, Pa.	AC
1431	1500	705	2200	60	22″ Bar Mill	Geared	1924	Atchison, Topeka & Sante Fe Ry.	San Francisco, Cal.	AC
1432	1500	705	2200	60	20″-16″ Hot Strip Mill	Geared	1925	Acme Steel Goods Co.	Riverdale, Ill.	W
1433	1500	735	2200	25		Geared	1923	Scullin Steel Co.	St. Louis, Mo.	AC
1434	1500	890–540	6600	60	4 Stand 12″ Mill	Coupled	1921	Tennessee Coal, Iron & R. R. Co.	Birmingham, Ala.	AC
1435	1600	94	2200	25	Sheet Mill	Rope	1910	American Sheet & Tin Plate Co.	Gary, Ind.	GE
1436	1600	94	2200	25	Sheet Mill	Rope	1910	American Sheet & Tin Plate Co.	Gary, Ind.	GE
1437	1600	94	2200	25	Sheet Mill	Rope	1913	American Sheet & Tin Plate Co.	Gary, Ind.	GE
1438	1600	94	2200	25	Sheet Mill	Rope	1913	American Sheet & Tin Plate Co.	Gary, Ind.	GE
1439	1600	94	2200	25	Tin Mill	Rope	1913	McKeesport Tin Plate Co.	McKeesport, Pa.	GE
1440	1600	94	2200	25	Tin Mill	Rope	1915	McKeesport Tin Plate Co.	McKeesport, Pa.	GE
1441	1600	94	2200	25	Tin Mill	Rope	1915	McKeesport Tin Plate Co.	McKeesport, Pa.	GE
1442	1600	94	2200	25	Tin Mill	Rope	1915	McKeesport Tin Plate Co.	McKeesport, Pa.	GE
1443	1600	150	6600	25		Direct	1912	Pittsburgh Crucible Steel Co.	Pittsburgh, Pa.	GE
1444	1600	150–300	600	d.c.	14″ Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
1445	1600	200–300	600	d.c.	20″ Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
1446	1600	210	2200	25	Sheet Mill	Geared	1912	Inland Steel Co.	Indiana Harbor, Ind.	W
1447	1600	210–420	525	d.c.	Rod Mill	Geared	1913	Steel Company of Canada	Hamilton, Ont.	W
1448	1600	210–420	525	d.c.	Rod Mill	Geared	1913	Steel Company of Canada	Hamilton, Ont.	W
1449	1600	214	2200	25	84″ Plate Mill	Geared	1913	Otis Steel Co.	Cleveland, Ohio	GE
1450	1600	240	2200	60	Sheet Mill	Geared	1919	Falcon Steel Co.	Niles, Ohio	GE
1451	1600	244	2200	25	84″ Plate Mill (Roughing)	Geared	1912	Alan Wood Iron & Steel Co.	Ivy Rock, Pa.	W
1452	1600	244	2200	25	84″ Plate Mill (Finishing)	Geared	1912	Alan Wood Iron & Steel Co.	Ivy Rock, Pa.	W
1453	1600	250	440	25	Sheet Mill	Geared	1914	Seneca Iron & Steel Co.	Buffalo, N. Y.	GE
1454	1600	257	2200	60	14″ Cont. Billet Mill	Geared	1912	Atlantic Steel Co.	Atlanta, Ga.	GE
1455	1600	270	2200	60	Sheet Mill	Geared	1916	Wheeling Steel Corporation	Wheeling, W. Va.	W
1456	1600	270	2200	60	Sheet Mill	Geared	1916	Wheeling Steel Corporation	Portsmouth, Ohio	W
1457	1600	360	2200	60	Sheet Mill	Geared	1929	Allegheny Steel Co.	Brackenridge, Pa.	GE
1458	1600	500	6600	25	Rod (Finishing) Mill	Rope	1910	American Steel & Wire Co.	Birmingham, Ala.	W
1459	1600	490	6600	25	Hoop Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	W
1460	1600	440–490–540	6600	25	Hoop Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	W
1461	1600	440–490–540	6600	25	Hoop Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	W
1462	1600	600	2200	60	Piercing Mill	Geared	1921	Standard Seamless Tube Co.	Pittsburgh, Pa.	GE
1463	1600	600	2200	60	Tube Rolling Mill	Geared	1925	Standard Seamless Tube Co.	Economy, Pa.	GE
1464	1600	705	2200	60	9″ Hot Strip Mill	Geared	1926	West Leechburg Steel Co.	West Leechburg, Pa.	W
1465	1600	705	2200	60	12″ Strip Mill	Geared	1929	West Leechburg Steel Co.	Leechburg, Pa.	W
1466	1650	112.5–270	750	d.c.	Slabbing Mill	Direct	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
1467	1650–1500–1350	413–375–337	6600	25	10″ Bar Mill, No. 10	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
1468	1700–1700	90–140	600	d.c.	14″ Continuous Mill	Direct	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
1469	1700–1700	90–205	600	d.c.	14″ Continuous Mill	Direct	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
1470	1700	214	2200	25	Sheet Mill	Geared	1915	American Sheet & Tin Plate Co.	Gary, Ind.	GE
1471	1700	214	2200	25	Tin Mill	Geared	1915	American Sheet & Tin Plate Co.	Gary, Ind.	GE
1472	1700	214	2200	25	Tin Mill	Geared	1915	American Sheet & Tin Plate Co.	Gary, Ind.	GE
1473	1700	214	2200	25	Tin Mill	Geared	1918	American Sheet & Tin Plate Co.	Gary, Ind.	GE
1474	1700	214	2200	25	Tin Mill	Geared	1918	American Sheet & Tin Plate Co.	Gary, Ind.	GE
1475	1700	214	2200	25	Tin Mill	Geared	1918	American Sheet & Tin Plate Co.	Gary, Ind.	GE
1476	1700	214	2200	25	Tin Mill	Geared	1919	American Sheet & Tin Plate Co.	Gary, Ind.	GE
1477	1700	250	440	25	Hot Sheet Mill	Geared	1925	Seneca Iron & Steel Co.	Buffalo, N. Y.	GE

No	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1478	1700	250–500	250	d.c.	12–10″ Mill	Geared	1925	Bethlehem Steel Co.	Johnstown, Pa.	AC
1479	1750	70–120	600	d.c.	29″ Billet Mill	Direct	1916	Youngstown Steel & Tube Co.	Indiana Harbor, Ind.	W
1480	1750	100–200	500	d.c.	12″ Spring Mill	Coupled	1926	Ford Motor Co., Fordson Plant	Detroit, Mich.	AC
1481	1750	150–300	230	d.c.	18–14″ Structural Mill	Direct	1924	Bethlehem Steel Corp.	Lackawanna, N. Y.	AC
1482	1750	180	6600	60	Rod Mill	Direct	1928	Gulf States Steel Co.	Alabama City, Ala.	W
1483	1750	514	6600	60	Rod Mill	Geared	1928	Gulf States Steel Co.	Alabama City, Ala.	W
1484	1750–1750–1140	485–360–235	2200	60	16″-14″ Merchant Mill	Geared	1927	Bourne Fuller Co.	Cleveland, Ohio	GE
1485	1800	40	600	d.c.	84″ Sheared Plate Mill	Direct	1917	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
1486	1800	75	6600	25	30″ Billet Mill	Direct	1914	Bethlehem Steel Co.	Bethlehem, Pa.	GE
1487	1800–1800	115–230	600	d.c.	20″ Hot Strip Mill	Direct	1922	Otis Steel Co.	Cleveland, Ohio	GE
1488	1800–1800	115–230	600	d.c.	20″ Hot Strip Mill	Direct	1922	Otis Steel Co.	Cleveland, Ohio	GE
1489	1800–1800	115–230	600	d.c.	20″ Hot Strip Mill	Direct	1922	Otis Steel Co.	Cleveland, Ohio	GE
1490	1800	120–80	2200	25	Light Rail Mill	Direct	1905	Illinois Steel Co.	South Chicago, Ill.	W
1491	1800	120–80	2200	25	Light Rail Mill	Direct	1905	Illinois Steel Co.	South Chicago, Ill.	W
1492	1800	125–250	600	d.c.	20″-16″ Hot Strip Mill	Direct	1925	Acme Steel Co.	Chicago, Ill.	W
1493	1800	125–250	600	d.c.	20″-16″ Hot Strip Mill	Direct	1925	Acme Steel Co.	Chicago, Ill.	W
1494	1800	150–300	250	d.c.	18-14″ Structural Mill	Direct	1924	Bethlehem Steel Co.	Lackawanna, N. Y.	AC
1495	1800	150	6600	60	Tube Mill	Direct	1928	Pittsburgh Steel Co.	Allenport, Pa.	W
1496	1800	165–350	240	d.c.	Strip Mill	Direct	1922	West Leechburg Steel Co.	Leechburg, Pa.	W
1497	1800	165–350	240	d.c.	Strip Mill	Direct	1922	West Leechburg Steel Co.	Leechburg, Pa.	W
1498	1800	185–370	600	d.c.	20″-16″ Hot Strip Mill	Geared	1925	Acme Steel Co.	Chicago, Ill.	W
1499	1800	185–370	600	d.c.	20″-16″ Hot Strip Mill	Direct	1925	Acme Steel Co.	Chicago, Ill.	W
1500	1800	185–370	600	d.c.	20″-16″ Hot Strip Mill	Direct	1925	Acme Steel Co.	Chicago, Ill.	W
1501	1800	200–400	600	d.c.	Cont. Merchant Mill	Direct	1925	Inland Steel Co.	Indiana Harbor, Ind.	GE
1502	1800	214	2200	25	6″ Hot Strip Mill	Rope	1907	American Steel & Wire Co.	Cleveland, Ohio	GE
1503	1800	235	2200	60	Sheet Mill	Geared	1915	Trumbull Steel Co.	Warren, Ohio	W
1504	1800–1500–1200	240–200–160	2300	60	10″ Hoop Mill	Belt	1918	Acme Steel Good Co.	Riverdale, Ill.	GE
1505	1800	240	2200	60	Sheet Mill	Geared	1920	Apollo Steel Co.	Apollo, Pa.	GE
1506	1800–1500	200–240–500	500–600	d.c.	Tube Mill	Direct	1929	National Tube Co.	Lorain, Ohio	AC
1507	1800–1800	250–125	6600	25	22″ Merchant Mill	Geared	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
1508	1800	250	2200	60	Tube Rolling Mill	Direct	1915	National Tube Co.	Ellwood City, Pa.	W
1509	1800	252	2200	60	Tube Rolling Mill	Direct	1925	National Tube Co.	Ellwood City, Pa.	W
1510	1800	253	2200	60	Eight Stand Tin Mill	Coupled	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	AC
1511	1800	252	2200	60	Hot Tin Mill	Geared	1928	Columbia Steel Co.	Pittsburgh, Cal.	W
1512	1800	270	6600	60	Sheet Mill	Geared	1916	Andrews Steel Co.	Newport, Ky.	W
1513	1800	270	6600	60	Sheet Mill	Geared	1916	Andrews Steel Co.	Newport, Ky.	W
1514	1800	275–550	600	d.c.	12″ Skelp Mill	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	W
1515	1800	275–550	600	d.c.	12″ Skelp Mill	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	W
1516	1800	295	2200	60	32″ Hot Roll Mill	Geared	1926	American Sheet & Tin Plate Co.	Monnessen, Pa.	AC
1517	1800–1350	300	2200	60	Tube Rolling Mill	Geared	1927	National Tube Co.	Ellwood City, Pa.	GE
1518	1800	350–640	500	d.c.	18″ Rougher	Geared	1926	Pittsburgh Crucible Steel Co.	Midland, Pa.	AC
1519	1800	366	2200	25	22″ Billet & Struct. Mill	Geared	1919	Scullin Steel Co.	St. Louis, Mo.	W
1520	1800–1800–1800	370–300–247	6600	60	Sheet Bar Mill	Geared	1920	American Rolling Mill Co.	Ashland, Ky.	GE
1521	1800–1500–1200	450–375–300	6600	25	10″ Hoop Mill, No. 11	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
1522	1800	475–550	550	d.c.	Merchant Mill	Direct	1928	Pittsburgh Steel Co.	Monessen, Pa.	CW
1523	1800	475–550	575	d.c.	Bar Mill	Coupled	1929	Pittsburgh Steel Co.	Monessen, Pa.	CW
1524	1800	500	600	d.c.	Tube Mill	Direct	1929	National Tube Co.	Lorain, Ohio	AC
1525	1800	500	6600	25	20″ Hot Strip Mill	Geared	1922	Otis Steel Co.	Cleveland, Ohio	GE
1526	1800	514	2200	60	Rod Mill	Geared	1923	Columbia Steel Co.	Pittsburgh, Cal.	GE
1527	1800	550–650	250	d.c.	22″ Merchant Mill	Geared	1925	Crucible Steel Co.	Pittsburgh, Pa.	GE
1528	1850–1450–925	120–94–60	6600	25	16″ Hand Bar Mill	Direct	1921	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
1529	1850	575–221	600	d.c.	Rod Mill	Direct & Belt	1922	Atlantic Steel Co.	Atlanta, Ga.	W
1530	2000	50–100	600	d.c.	30″ Bar Mill	Direct	1919	Follansbee Brothers Co.	Toronto, Ohio	W
1531	2000	0–57–163	700	d.c.	52″ Struct. Edging Mill	Direct	1926	Carnegie Steel Co.	Homestead, Pa.	W
1532	2000	0–57–163	700	d.c.	52″ Struct. Edging Mill	Direct	1926	Carnegie Steel Co.	Homestead, Pa.	W
1533	*2000	62.5	6600	25	Tube Mill	Direct	1929	National Tube Co.	McKeesport, Pa.	W
1534	*2000	62.5	6600	25	Tube Mill	Direct	1929	National Tube Co.	Lorain, Ohio	AC
1535	*2000	68	6600	60	Tube Mill	Direct	1929	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
1536	2000	68	6600	25	28″ Rail Mill	Direct	1906	Illinois Steel Co.	Gary, Ind.	GE
1537	2000	75	2200	25	Blooming Mill	Direct	1916	Wickwire Spencer Steel Co.	Buffalo, N. Y.	GE
1538	2000	75–225	700	d.c.	52″ Structural Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
1539	2000	75–225	700	d.c.	52″ Structural Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
1540	2000	83	6600	25	96″ Plate Mill	Coupled	1918	Youngstown Sheet & Tube Co.	Youngstown, Ohio	AC
1541	2000	83	6600	25	84″ Plate Mill	Coupled	1918	Youngstown Sheet & Tube Co.	Youngstown, Ohio	AC
1542	2000	85–165	600	d.c.	21″ Cont. Sheet Bar and Skelp Mill	Direct	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
1543										
1544	2000	85–165	600	d.c.	21″ Cont. Sheet Bar and Skelp Mill	Direct	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
1545										
1546	2000	85–165	600	d.c.	21″ Cont. Sheet Bar and Skelp Mill	Direct	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
1547										
1548	2000	94	2200	25	18″ Merchant Mill	Direct	1912	Forged Steel Wheel Co.	Butler, Pa.	GE
1549	*2000	94	2200	25	4-Stand 18″ Mill	Direct	1929	Algoma Steel Co.	Ste. Marie, Ont.	GE
1550	2000–900	40–97–190	350–850	d.c.	10″ Merchant Mill	Direct	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
1551	2000–2000–2000	100–83.3–65	6600	25	12″ Structural Mill	Direct	1916	Bethlehem Steel Co.	Bethlehem, Pa.	GE
1552	2000	113	6600	25	12″ Merchant Mill	Direct	1909	Illinois Steel Co.	Gary, Ind.	W
1553	2000	134–275	600	d.c.	10″ Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	W
1554	2000	137¼–275	500	d.c.	10″ Merchant-Rod & Strip Mill	Direct	1927	Ford Motor Co.	Detroit, Mich.	W
1555	2000	163–113	6600	25	10″ Merchant Mill	Direct	1909	Illinois Steel Co.	Gary, Ind.	W
1556	2000	175–400	600	d.c.	28″ Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
1557	2000	175–400	600	d.c.	28″ Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
1558	2000	175–400	600	d.c.	28″ Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
1559	2000	175–400	600	d.c.	28″ Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
1560	2000	180	2200	60	14″ Strip Mill	Direct	1928	Superior Steel Corp.	Carnegie, Pa.	W
1561	2000	200–400	600	d.c.	Hot Strip Mill	Geared	1926	Columbia Steel Co.	Butler, Pa.	GE
1562	2000	200–400	600	d.c.	Hot Strip Mill	Geared	1926	Columbia Steel Co.	Butler, Pa.	GE
1563	2000	200–400	600	d.c.	Hot Strip Mill	Geared	1926	Columbia Steel Co.	Butler, Pa.	GE
1564	2000	200–400	600	d.c.	Hot Strip Mill	Geared	1926	Columbia Steel Co.	Butler, Pa.	GE
1565	2000	200–400	600	d.c.	14″-12″ Skelp Mill	Geared	1926	Wheeling Steel Co.	Benwood, W. Va.	GE
1566	2000	200–400	600	d.c.	14″-12″ Skelp Mill	Geared	1926	Wheeling Steel Co.	Benwood, W. Va.	GE
1567	2000	200–400	600	d.c.	14″-12″ Skelp Mill	Geared	1926	Wheeling Steel Co.	Benwood, W. Va.	GE
1568	2000	200–400	600	d.c.	Strip Sheet Mill	Direct	1926	Weirton Steel Co.	Weirton, W. Va.	GE
1569	2000	200–400	600	d.c.	Strip Sheet Mill	Direct	1926	Weirton Steel Co.	Weirton, W. Va.	GE
1570	2000	200	2200	60	Rail Rerolling	Direct	1928	Danville Structural Co.	Danville, Ky.	W
1571	2000	200–350	600	d.c.	14″ Strip Mill	Direct	1928	Superior Steel Corp.	Carnegie, Pa.	W
1572	2000–1700	210–680	600	d.c.	14″ Continuous Mill	Direct	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
1573	2000	214	6600	25	40″ Rail Mill	Geared	1906	Illinois Steel Co.	Gary, Ind.	GE
1574	2000	214	6600	25	40″ Rail Mill	Geared	1906	Illinois Steel Co.	Gary, Ihd.	GE
1575	2000	214	6600	25	40″ Billet Mill	Geared	1907	Illinois Steel Co.	Gary, Ind.	GE
1576	2000	214	6600	25	40″ Billet Mill	Geared	1907	Illinois Steel Co.	Gary, Ind.	GE
1577	2000	214	2200	25	Jobbing Plate Mill	Geared	1925	Otis Steel Co.	Cleveland, Ohio	GE
1578	2000	230–460	600	d.c.	Merchant Mill	Direct	1925	International Harvester Co.	Chicago, Ill.	W
1579	2000	230–460	600	d.c.	Merchant Mill	Direct	1925	International Harvester Co.	Chicago, Ill.	W
1580	2000	230–460	600	d.c.	Merchant Mill	Direct	1925	International Harvester Co.	Chicago, Ill.	W
1581	2000	230–460	600	d.c.	Sheet Mill	Geared	1926	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
1582	2000	230–460	600	d.c.	10″ Rod Mill	Geared	1927	American Steel & Wire Co.	Worcester, Mass.	W
1583	2000	230–460	600	d.c.	Structural Mill	Geared	1929	U. S. Aluminum Co.	Massena, N. Y.	W
1584	2000	234–161	2200	60	10″ Skelp (Finishing) Mill	Belt	1916	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd By
1585	2000	234	2200	60	Sheet Mill	Geared	1919	Newton Steel Co.	Newton Falls, Ohio	W
1586	2000	234	2200	60	Tin Mill	Geared	1920	National Enam. & Stamping Co.	St. Louis, Mo.	W
1587	2000	234	2200	60	Sheet Mill	Geared	1921	Newton Steel Co.	Newton Falls, Ohio	W
1588	2000	234	2200	60	Sheet Mill	Geared	1923	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
1589	2000	240	2200	60	32″ Blooming Mill	Geared	1915	Mansfield Sheet & Tin Plate Co.	Mansfield, Ohio	GE
1590	2000	240	2200	60	18″ Sheet Bar Mill	Geared	1920	National Enam. & Stamping Co.	Granite City, Ill.	GE
1591	2000	240	2200	60	Sheet Mill	Geared	1919	Republic Iron & Steel Co.	Niles, Ohio	GE
1592	2000	240	2200	60	Hot Sheet Mill	Geared	1929	Newton Steel Co.	Monroe, Mich.	GE
1593	2000	240	2200	60	Hot Sheet Mill	Geared	1929	Newton Steel Co.	Monroe, Mich.	GE
1594	2000	244	2200	25	90″ Plate Mill	Rope	1912	Inland Steel Co.	Indiana Harbor, Ind.	W
1595	2000	250–150	2200	60	Morgan Continuous Mill	Coupled	1919	Interstate Iron & Steel Co.	Chicago, Ill.	AC
1596	2000–2000	250–161	6600	25	10″ Skelp Mill	Geared	1915	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
1597	2000	250	6600	25	Sheet Mill	Geared	1920	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
1598	2000	250	6600	25	Tube & Piercing Mill	Geared	1928	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
1599	2000	250–465	240	d.c.	22″ Bar Mill	Geared	1928	Timken Roller Bearing Co.	Canton, Ohio	GE
1600	2000	250	6600	25	Sheet Mill	Geared	1920	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
1601	2000	250–465	240	d.c.	Piercing Mill	Geared	1929	Timken Roller Bearing Co.	Canton, Ohio	GE
1602	*2000	250	6600	25	Tube Mill	Geared	1929	National Tube Co.	McKeesport, Pa.	W
1603	*2000	250	6600	25	Tube Mill	Geared	1929	National Tube Co.	McKeesport, Pa.	W
1604	2000	250–500	600	d.c.	14″ Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
1605	2000	250–500	600	d.c.	14″ Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
1606	2000	250–500	600	d.c.	20″ Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
1607	2000	250–500	600	d.c.	20″ Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
1608	2000	250–500	600	d.c.	20″ Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
1609	2000	250–500	600	d.c.	20″ Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
1610	2000	250–500	600	d.c.	20″ Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
1611	2000	250–500	600	d.c.	20″ Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
1612	2000	250–500	600	d.c.	21″ Bar & Billet Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
1613	2000	250–500	600	d.c.	21″ Bar & Billet Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
1614	2000	260–800	600	d.c.	14″ Continuous Mill	Direct	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
1615	2000	275–550	600	d.c.	10″ Skelp Mill	Geared	1928	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
1616	2000	275–550	600	d.c.	18″–16″ Skelp Mill	Geared	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
1617	2000	295	6600	25	Sheet Mill	Geared	1929	Bethlehem Steel Co.	Sparrows Pt. Md.	W
1618	2000	295	2200	60	Billet Mill	Geared	1928	J. A. Roebling Sons Co.	Trenton, N. J.	W
1619	2000	294	6600	25	14″ Cont. Skelp Mill	Coupled	1924	Gary Tube Co.	Gary, Ind.	AC
1620	2000	300	2200	60	Sheet Mill	Geared	1926	American Sheet & Tin Plate Co.	Scottdale, Pa.	GE
1621	2000	300–500	600	d.c.	Bar Plate Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
1622	2000	300–500	600	d.c.	Bar Plate Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
1623	2000	300–500	600	d.c.	Bar Plate Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
1624	2000	315–500	600	d.c.	10″ Merchant Mill	Geared	1926	Illinois Steel Co.	Gary, Ind.	GE
1625	2000	350–234	2200	60	10″ Skelp (Roughing) Mill	Geared	1917	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
1626	2000	368	6600	25	20″ Structural Mill	Geared	1929	Bethlehem Steel Co.	Steelton, Pa.	W
1627	2000	375	2200	25	84″ Plate Mill	Geared	1916	Donner Steel Co.	Buffalo, N. Y.	GE
1628	2000	375	2200	25	Wheel Mill	Geared	1916	Bethlehem Steel Co.	Johnstown, Pa.	AC
1629	2000–2000–1600	450–360–270	2200	60	16″ Hot Strip Mill	Geared	1920	Trumbull Steel Co.	Warren, Ohio	GE
1630	2000–2000–1600	450–360–270	2200	60	16″ Hot Strip Mill	Geared	1920	Trumbull Steel Co.	Warren, Ohio	GE
1631	2000–2000–1600	450–360–270	2200	60	16″ Hot Strip Mill	Geared	1920	Trumbull Steel Co.	Warren, Ohio	GE
1632	2000	450	6600	60	Rail Mill Roughing Stand	Geared	1925	Colorado Fuel & Iron Co.	Minnequa, Col.	GE
1633	2000	450	6600	60	25″ Structural Mill	Geared	1926	Colorado Fuel & Iron Co.	Minnequa, Col.	GE
1634	2000	500–300	2200	50	22″ Merchant Mill	Geared	1927	Columbia Steel Corp.	Torrance, Calif.	GE
1635	2000	505	6600	60	Plate Mill	Geared	1922	American Rolling Mills Co.	Ashland, Ky.	W
1636	2000	505	6600	60	Plate Mill	Geared	1922	American Rolling Mills Co.	Ashland, Ky.	W
1637	2000	600	6600	60	Sheet Mill	Geared	1924	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	GE
1638	2000	600	6600	60	Fin. Stand of 24″ Struc. Mill	Geared	1924	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	GE
1639	2000	600	6600	60		Geared	1925	Tenn. Coal, Iron & R. R. Co.	Fairfield, Ala.	GE
1640	2000–1600–1200	625–500–375	6600	25	12″ Strip Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	GE
1641	2000–1600–1200	625–500–375	6600	25	14″ Bar Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	GE
1642	2070–1650–1205	235–187.5–137	6600	25	20″ Hot Strip Mill	Direct	1920	Illinois Steel Co.	Gary, Ind.	GE
1643	2100	50–125	700	d.c.	42″ Universal Plate Mill	Direct	1916	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
1644	2100	47–120	700	d.c.	34″ Blooming Mill	Direct	1916	Penn Seaboard Steel Corporation	New Castle, Del.	W
1645	2100–2100	150–310	600	d.c.	14″ Continuous Mill	Direct	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
1646	2100–1600	150–460	600	d.c.	14″ Continuous Mill	Direct	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
1647	2100	720	6600	60	Rod Mill	Geared	1928	Gulf States Steel Co.	Alabama City, Ala.	W
1648	2150	50–100	535	d.c.	Reversing Bar Mill	Direct	1926	Standard Seamless Tube Co.	Economy, Pa.	GE
1649	2200	50–120	600	d.c.	40″ Universal Plate Mill	Direct	1919	Dominion Foundrys & Steel Co.	Hamilton, Ont.	W
1650	2200	70–150	600	d.c.	28″ Blooming Mill	Direct	1920	Atlantic Steel Co.	Atlanta, Ga.	W
1651	2200–2000–1800	275–250–225	6600	25	10″ Bar Mill, No. 15	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
1652	2200–2000–1800	275–250–225	6600	25	18″ Band Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio,	GE
1653	2200	350–500	600	d.c.	20″ Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
1654	2200	705	2200	60	16″ Strip Mill	Geared	1929	West Leechburg Steel Co.	Leechburg, Pa.	W
1655	2200	505–303	2200	60	18″ Bar (Finishing) Mill	Geared	1919	Central Steel Co.	Massillon, Ohio	W
1656	2300–1300	115.4–65	6600	25	10″ Skelp Mill	Geared	1915	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
1657	2300	200–400	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
1658	2360–1880–1440	410–327–250	2200	60	Rod Mill	Geared	1916	Keystone Steel & Wire Co.	Peoria, Ill.	GE
1659	2400	500	6600	25	Wire Rod Mill	Geared	1916	Illinois Steel Co.	Gary, Ind.	AC
1660	2400	505	2200	60	22″ Bar Mill	Geared	1926	Pacific Coast Steel Co.	Seattle, Wash.	W
1661	2470–1725–1235	430–300–215	2200	25	Rod Mill	Geared	1916	Wickwire Spencer Steel Co.	Buffalo, N. Y.	GE
1662	2500	53–80	660	d.c.	Reversing Plate Mill	Direct	1926	Lukens Steel Co.	Coatesville, Pa.	GE
1663	2500	55	650	d.c.	24″–18″ Billet Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
1664	2500	80	2200	60	Bar Mill	Direct	1928	Interstate Iron & Steel Co.	Chicago, Ill.	AC
1665	2500	82	6600	60	28″ Structural Mill	Direct	1917	Tennessee Coal, Iron & R. R. Co	Fairfield, Ala.	GE
1666	2500	113–91	6600	25	12″ Merchant Mill	Geared	1909	Illinois Steel Co.	Gary, Ind.	W
1667	2500	100–300	650	d.c.	40″ x 80″ Rev. Slabbing Mill	Geared	1929	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
1668	*2500	125	6600	25	30″ Slab & Billet Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
1669	2500	146	6600	25	16″ Cont. Skelp Mill	Coupled	1924	Gary Tube Co.	Gary, Ind.	AC
1670	2500	150	6600	25	28″ Billet Mill	Geared	1923	Pittsburgh Crucible Steel Co.	Midland, Pa.	GE
1671	2500	160–320	600	d.c.	Continuous Sheet Mill	Geared	1926	American Sheet & Tinplate Co.	Gary, Ind.	W
1672	2500	160–320	600	d.c.	Continuous Sheet Mill	Geared	1926	American Sheet & Tinplate Co.	Gary, Ind.	W
1673	2500	160–320	600	d.c.	Continuous Sheet Mill	Geared	1926	American Sheet & Tinplate Co.	Gary, Ind.	W
1674	2500	160–320	600	d.c.	Continuous Sheet Mill	Geared	1926	American Sheet & Tinplate Co.	Gary, Ind.	W
1675	2500	160–320	600	d.c.	Continuous Sheet Mill	Geared	1926	American Sheet & Tinplate Co.	Gary, Ind.	W
1676	2500	160–320	600	d.c.	Continuous Sheet Mill	Geared	1926	American Sheet & Tinplate Co.	Gary, Ind.	W
1677	2500	175–350	600	d.c.	28″ Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
1678	2500	175–350	600	d.c.	28″ Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
1679	2500	175–350	600	d.c.	28″ Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
1680	2500	180–450	600	d.c.	Wire Rod Mill	Geared	1928	John A. Roebling Sons	Trenton, N. J.	GE
1681	2500	184	6600	25	Skelp Mill	Rope	1908	National Tube Co.	Lorain, Ohio	W
1682	2500	184	6600	25	Skelp Mill	Rope	1908	National Tube Co.	Lorain, Ohio	W
1683	2500	187½	6600	25	18″ Band Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	GE
1684	2500	187½	6600	25	18″ Band Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	GE
1685	2500	200–400	600	d.c.	Strip Sheet Mill	Direct	1926	Weirton Steel Co.	Weirton, W. Va.	GE
1686	2500	200–400	600	d.c.	Strip Sheet Mill	Direct	1926	Weirton Steel Co.	Weirton, W. Va.	GE
1687	2500	200–400	600	d.c.	Strip Sheet Mill	Direct	1926	Weirton Steel Co.	Weirton, W. Va.	GE
1688	2500	200–400	600	d.c.	21″ Sheet Bar Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
1689	2500	200–400	600	d.c.	21″ Sheet Bar Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
1690	2500	200–400	600	d.c.	21″ Sheet Bar Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
1691	2500	200–400	600	d.c.	21″ Sheet Bar Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
1692	2500	235	2200	60	84″ Plate (Finishing) Mill	Geared	1917	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W

No	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1693	2500	240	2200	60	Sheet Mill	Geared	1919	Wheeling Steel Corp.	Stuebenville, Ohio	GE
1694	2500	240	2200	60	24" Sheet Bar Mill	Geared	1920	Mansfield Sheet & Tin Plate Co.	Mansfield, Ohio	GE
1695	2500	247	6600	25	Piercing Mill	Geared	1923	Gary Tube Co.	Gary, Ind.	W
1696	2500	247	6600	25	Seamless Tube Mill	Geared	1925	Gary Tube Company	Gary, Ind.	W
1697	2500	252	2200	60	Skelp Mill	Geared	1917	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
1698	2500	252	2200	60	Skelp Mill	Geared	1917	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
1699	2500	257	2200	60	Piercing Mill	Geared	1925	Globe Steel Tube Co.	Milwaukee, Wis.	AC
1700	2500	295	6600	25	16" Cont. Skelp Mill	Coupled	1924	Gary Tube Co.	Gary, Ind.	AC
1701	2500	295	2200	60	18" Continuous Billet Mill	Geared	1926	American Steel & Wire Co.	Worcester, Mass.	AC
1702	2500	296	2200	60	18" Continuous Rod Mill	Geared	1928	Sheffield Steel Corp.	Kansas City, Mo.	AC
1703	2500	300	2200	25	Sheet Mill	Geared	1925	Inland Steel Co.	Indiana Harbor, Ind.	GE
1704	2500	300	650	d.c.	24"-18" Billet Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
1705	2500	352-167	6600	60	16" Hoop and Band Mill	Geared	1915	Weirton Steel Co.	Weirton, W. Va.	W
1706	2500	500	2200	60	22" Bar Mill	Geared	1923	Phoenix Iron Co.	Phoenixville, Pa.	W
1707	2600	81.5	6600	25	Rod (Roughing) Mill	Geared	1910	American Steel & Wire Co.	Birmingham, Ala.	W
1708	2600	320-275	600	d.c.	26" & 21" Cont. Mill	Direct	1926	Bethlehem Steel Co.	Sparrows Point, Md.	GE
1709	2600	368	6400	25	Rod Mill	Geared	1916	American Steel & Wire Co.	Cleveland, Ohio	W
1710	2750-2240-1750	262-214-167	6600	25	12" Hot Strip Mill	Direct	1920	Illinois Steel Co.	Gary, Ind.	GE
1711	2750-2500-2250	275-250-225	6600	25	14" Bar Mill, No. 14	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
1712	2750	450	6600	60	Rod Mill	Geared	1928	Gulf States Steel Co.	Alabama City, Ala.	W
1713	2870-1435	400-200	600	d.c.	10" Rod Mill	Geared	1922	Wheeling Steel Corp.	Portsmouth, Ohio	GE
1714	2900	47-120	700	d.c.	34" Blooming Mill	Direct	1917	Sharon Steel Hoop Co.	Youngstown, Ohio	W
1715	3000	40-100	600	d.c.	Seamless Tube Mill	Direct	1925	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
1716	3000	65-130	600	d.c.	30" Rev. Bar Mill	Direct	1927	National Tube Co.	Lorain, Ohio	W
1717	3000	65-130	650	d.c.	30" Rev. Bar Mill	Direct	1927	Jones & Laughlin Steel Co.	Woodlawn, Pa.	W
1718	3000	70-175	750	d.c.	24" Bar Mill	Direct	1927	Inland Steel Corp.	Ind. Harbor, Ind.	GE
1719	3000	70-150	750	d.c.	24" Reversing Bar Mill	Direct	1925	Inland Steel Co.	Indiana Harbor, Ind.	GE
1720	3000	91	2200	25	Struct. (Roughing) Mill	Geared	1910	Illinois Steel Co.	South Chicago, Ill.	W
1721	*3000	100	11000	60	23" 3-High Billet Mill	Direct	1929	American Steel & Wire Co.	Cleveland, Ohio	GE
1722	3000	125	6400	25	20" Flat Mill	Coupled	1916	American Steel & Wire Co.	Cleveland, Ohio	AC
1723	3000	125-200	600	d.c.	Seamless Tube Mill	Direct	1925	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
1724	3000	150	6600	25	Wire Rod Mill	Coupled	1920	Minnesota Steel Co.	Steelton, Minn.	AC
1725	3000	150-300	250	d.c.	18"14" Structural Mill	Direct	1924	Bethlehem Steel Co.	Johnstown, Pa.	AC
1726	3000	150-300	250	d.c.	18"-14" Structural Mill	Direct	1924	Bethlehem Steel Co.	Johnstown, Pa.	AC
1727	*3000	150	6600	60	Piercing Mill	Direct	1929	Pittsburgh Steel Co.	Monessen, Pa.	GE
1728	3000-3000-3000	155-144-130	6600	60	24" Structural Mill	Direct	1917	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	GE
1729	3000	180-360	600	d.c.	Hot Strip Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
1730	3000	180-360	600	d.c.	Hot Strip Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
1731	3000	180-360	600	d.c.	Hot Strip Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
1732	3000	180-360	600	d.c.	Hot Strip Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
1733	3000	180-370	600	d.c.	10" Wire Rod Mill	Geared	1926	American Steel & Wire Co.	Worcester, Mass.	W
1734	3000	184	6600	25	16" Cont. Skelp Mill	Coupled	1924	Gary Tube Co.	Gary, Ind.	AC
1735	*3000	187.5	6600	25	30" Slab & Billet Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
1736	3000-3000	200-360	600	d.c.	14" Continuous Mill	Geared	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
1737	3000	200-400	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corp.	Steubenville, O.	GE
1738	3000	200-400	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
1739	3000	200-400	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
1740	3000	200-400	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
1741	3000	209	6600	25	12" & 16" Merchant Mill	Geared	1913	Minnesota Steel Co.	Duluth, Minn.	W
1742	3000	200-300	600	d.c.	28" Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
1743	3000	200-400	600	d.c.	18"-16" Skelp Mill	Geared	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
1744	3000	200-400	600	d.c.	60" Wide Strip Mill	Geared	1929	Wheeling Steel Corp.	Steubenville, Ohio	GE
1745	3000	235	2200	60	100" Plate Mill	Geared	1922	National Enam. & Stamping Co.	St. Louis, Mo.	W
1746	3000	245	2200	25	90" Plate Mill	Geared	1920	Inland Steel Co.	Indiana Harbor, Ind	W
1747	3000	250	6600	25	18" Cont. Billet Mill	Geared	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
1748	3000	250	6600	25	Piercing Mill	Geared	1927	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
1749	3000	250	6600	25	Piercing Mill	Geared	1927	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
1750	3000	250	6600	25	Piercing Mill	Geared	1927	National Tube Co.	Lorain, Ohio	AC
1751	3000	250	6600	25	Piercing Mill	Geared	1927	National Tube Co.	Lorain, Ohio	AC
1752	3000-2500-2000	300-250-200	6600	25	18" Band Mill, No. 13	Direct	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
1753	3000-2500-2000	300-250-200	6600	25	12" Hoop Mill, No. 12	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
1754	3000	300-450	600	l.c.	20" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
1755	*3000	300	2200	25	52" Structural Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
1756	3000	325-485	600	d.c.	24" Structural Mill	Geared	1923	Phoenix Iron Co.	Phoenixville, Pa.	W
1757	3000	354-212	2200	60	Skelp Mill	Geared	1920	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
1758	3000	360	6600	60	28" Rail Mill	Geared	1919	Dominion Iron & Steel Co.	Sydney, N. S.	GE
1759	3000	375	2200	25	14" Merchant Mill	Geared	1916	Donner Steel Co.	Buffalo, N. Y.	GE
1760	3000	375	2200	25	18" Billet Mill	Geared	1916	Donner Steel Co.	Buffalo, N. Y.	GE
1761	3000	375	6600	25	24" Sheet Bar Mill	Geared	1922	Otis Steel Co.	Cleveland, Ohio	GE
1762	3000	450	6600	60	Rod Mills No. 1 to No. 6	Geared	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
1763	3000	450	6600	60	Rod Mills No. 10 to No. 15	Geared	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
1764	3000	450	6600	60	Rail Mill, Intermediate Stand	Geared	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
1765	3000	450	6600	60	25" Structural Mill	Geared	1926	Colorado Fuel & Iron Co.	Minnequa, Col.	GE
1766	3000-2250-1500	500-375-250	2200	25	24" Sheet Bar Mill	Geared	1926	Inland Steel Co.	Indiana Harbor, Ind.	GE
1767	3000	500	6600	25	26" Rail Mill	Geared	1924	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
1768	3000	500	6600	25	26" Rail Mill	Geared	1924	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
1769	3000	505-300	2200	60	12" Merchant Mill	Geared	1920	United Alloy Steel Corporation	Canton, Ohio	W
1770	3100	70-150	600	d.c.	Universal Plate Mill	Direct	1925	International Harvester Co.	Chicago, Ill.	W
1771	3200	50-120	700	d.c.	34" Struct. (Rough). Mill	Direct	1915	Inland Steel Co.	Indiana Harbor, Ind.	W
1772	3200	50-120	700	d.c.	28" Struct. (Fin.) Mill	Direct	1915	Inland Steel Co.	Indiana Harbor, Ind.	W
1773	3200	91	6600	25	18" Merchant Mill	Geared	1909	Illinois Steel Co.	Gary, Ind.	W
1774	3200	91	6600	25	14" Merchant Mill	Geared	1909	Illinois Steel Co.	Gary, Ind.	W
1775	3250	40	500	d.c.	36" Blooming Mill	Direct	1916	American Rolling Mill Co.	Ashland, Ky.	GE
1776	3250	40	500	d.c.	34" Blooming Mill	Direct	1916	Keystone Steel & Wire Co.	Peoria, Ill.	GE
1777	3250	94	6600	25	18" Sheet Bar Mill	Direct	1916	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
1778	3500	50-120	700	d.c.	34" Blooming Mill	Direct	1925	Kokomo Steel & Wire Co.	Kokomo, Ind.	W
1779	3500	50-120	700	d.c.	36" Blooming Mill	Direct	1925	Phoenix Iron Co.	Phoenixville, Pa.	W
1780	3500	50-100	650	d.c.	Rail Mill	Direct	1925	Bethlehem Steel Co.	Steelton, Pa.	GE
1781	3500	70-100	525	d.c.	32" Blooming Mill	Direct	1913	Steel Company of Canada	Hamilton, Ont.	W
1782	3500	50-75	700	d.c.	34" Blooming Mill	Direct	1914	Central Steel Co.	Massillon, Ohio	W
1783	3500	50-120	700	d.c.	35"-Structural Mill	Direct	1924	Bethlehem Steel Co.	Lackawanna, N. Y.	W
1784	3500	50-120	750	d.c.	32" Structural Mill	Direct	1928	Illinois Steel Co.	South Chicago, Ill.	GE
1785	3500	92	2200	60	18" Sheet Bar Mill	Direct	1916	Trumbull Steel Co.	Warren, Ohio	GE
1786	3500	92	2200	60	21" Sheet Bar Mill	Direct	1918	Trumbull Steel Co.	Warren, Ohio	GE
1787	3500	247	6600	25	Tube Mill		1929	National Tube Co.	Lorain, Ohio	AC
1788	*3500	250	6600	25	Tube Mill	Geared	1929	National Tube Co.	McKeesport, Pa.	W
1789	*3500	250	6600	25	Tube Mill	Geared	1929	National Tube Co.	McKeesport, Pa.	W
1790	*3500	300	6600	25	30" Slab & Billet Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
1791	3500	390	2200	60	Continuous Billet Mill	Geared	1920	Steel Co. of Canada	Hamilton, Ont.	W
1792	3500	600	2200	60	Piercing Mill	Geared	1925	Standard Seamless Tube Co.	Economy, Pa.	GE
1793	3600	40-90	600	d.c.	35" Blooming Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	W
1794	3600	40-90	600	d.c.	40" Blooming Mill	Direct	1917	Illinois Steel Co.	Gary, Ind.	W
1795	3600	150-300	250	d.c.	18-14" Structural Mill	Direct	1924	Bethlehem Steel Co.	Lackawanna, N. Y.	AC
1796	3600-1940	290-156	2200	60	21" Cont. Sheet Bar and Skelp Mill	Geared	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
1797	3750	50-130	700	d.c.	Blooming Mill	Direct	1927	Central Alloy Steel Co.	Massillon, Ohio	AC
1798	3750	500	2200	60	112" 3-High Plate Mill	Geared	1925	Lukens Steel Company	Coatesville, Pa.	W
1799	4000	0-150	575	d.c.	36" Universal Plate Mill	Direct	1905	Illinois Steel Co.	South Chicago, Ill.	W
1800	4000	58-120	700	d.c.	34" Blooming Mill	Direct	1924	Donner Steel Co.	Buffalo, N. Y.	GE
1801	4000	58-140	750	d.c.	34" Reversing Blooming	Direct	1926	Bourne Fuller Co.	Cleveland, Ohio	GE

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1802	4000	60–140	900	d.c.	36″ Rev. Blooming Mill	Direct	1929	Corrigan-McKinney Steel Co.	Cleveland, Ohio	GE
1803	4000	60–140	900	d.c.	46″ Rev. Universal Mill	Direct	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
1804	4000	80–160	800	d.c.	32″ Universal Plate Mill	Direct	1929	Gulf States Steel Co.	Alabama City, Ala.	W
1805	4000	80	650	d.c.	30″ Universal Skelp Mill	Direct	1922	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
1806	4000	0–80	1200	d.c.	34″ Blooming Mill	Coupled	1912	Algoma Steel Co.	Sault Ste. Marie, Can	AC
1807	4000	82	6600	60	110″ Plate Mill	Direct	1917	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	GE
1808	4000	82	6600	60	110″ Plate Mill	Direct	1918	Dominion Iron & Steel Corp.	Sydney, N. S.	GE
1809	4000	83	6600	25	110″ Plate Mill	Direct	1916	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
1810	4000	83	6600	25	24″ Cont. Billet Mill	Direct	1916	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
1811	4000	83	6600	5	110″ Plate Mill	Direct	1917	Carnegie Steel Co.	Homestead, Pa.	GE
1812	4000	83	6600	60	33″ Structural Mill	Direct	1920	Carnegie Steel Co.	Homestead, Pa.	GE
1813	4000	83.3	6600	25	26″ x 21″ Cont. Mill	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	GE
1814	4000	93	6600	60	18″ Continuous Bar Mill	Direct	1919	Weirton Steel Co.	Weirton, W. Va.	W
1815	4000	93	6600	60	21″ Continuous Bar Mill	Direct	1919	Weirton Steel Co.	Weirton, W. Va.	W
1816	*4000	138.5	6600	60	Bar Mill	Direct	1929	Great Lakes Steel Co.	Detroit, Mich.	W
1817	4000	147	6600	25	20″ Merchant Mill	Geared	1916	Illinois Steel Co.	Gary, Ind.	W
1818	4000	200	6600	60	120″ Plate Mill	Geared	1920	Worth Steel Co.	Claymont, Del.	GE
1819	4000	250–465	240	d.c.	Piercing Mill	Geared	1928	Timken Roller Bearing Co.	Canton, Ohio	GE
1820	4000	300–400	600	d.c.	60″ Wide Strip Mill	Geared	1929	Wheeling Steel Corp.	Steubenville, Ohio	GE
1821	4000	300–360	6600	60	Sheet Mill	Geared	1929	American Rolling Mill Co.	Ashland, Ky.	GE
1822	4000	360	2200	60	21″ Sheet Bar Mill	Geared	1917	Sharon Steel Hoop Co.	Lowellville, Ohio	GE
1823	4000	375	6600	25	Rail Mill	Geared	1925	Bethlehem Steel Co.	Steelton, Pa.	GE
1824	4000	375	6600	25	10″ Cont. Wire Rod Mill	Geared	1925	Bethlehem Steel Co.	Sparrows Point, Md.	GE
1825	4000	450	2200	60	24″ Continuous Billet Mill	Geared	1927	Carnegie Steel Co.	Farrell, Pa.	W
1826	4200	93	2200	60	Continuous Bar Mill	Direct	1915	United Alloy Steel Corporation	Canton, Ohio	W
1827	4500–4500	67.5–110	500	d.c.	14″ Merchant Mill	Geared	1923	Ford Motor Co.	Detroit, Mich.	GE
1828	4500	120–255	750	d.c.	Univ. Skelp Mill	Coupled	1925	Gary Tube Co.	Gary, Ind.	AC
1829	4500	150–450	600	d.c.	Strip Mill	Geared	1928	Sharon Steel Hoop Co.	Sharon, Pa.	GE
1830	4500	450	2200	60	152″ Plate Mill	Geared	1926	Bethlehem Steel Co.	Coatesville, Pa.	GE
1831	4500–4500	500–300	2200	25	14″ Merchant Mill	Geared	1923	Inland Steel Co.	Indiana Harbor, Ind.	GE
1832	5000	40–120	600	d.c.	40″ Blooming Mill	Direct	1916	National Tube Co.	Lorain, Ohio	W
1833	5000	40–120	600	d.c.	35″ Blooming Mill	Direct	1915	United Alloy Steel Corporation	Canton, Ohio	W
1834	5000	40–80	700	d.c.	54″ Blooming Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
1835	5000	40–80	700	d.c.	54″ Blooming Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
1836	5000	50–130	900	d.c.	40″ Rev. Bloomer Mill	Direct	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
1837	5000	50–120	700	d.c.	36″ Rev. Rougher Mill	Direct	1924	Carnegie Steel Co.	Homestead, Pa.	W
1838	500	50–120	900	d.c.	36″ Roughing Mill	Direct	1927	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
1839	5000	50–120	600	d.c.	Blooming Mill	Direct	1928	Aluminum Co. of America	Massena, N. Y.	AC
1840	5000	70–150	900	d.c.	27″ Rev. Hot Strip Mill	Direct	1926	Columbia Steel Co.	Butler, Pa.	GE
1841	5000	75–120	700	d.c.	48″ Universal Plate Mill	Direct	1923	Bethlehem Steel Co.	Lackawanna, N. Y.	W
1842	5000	75–150	700	d.c.	28″ Structural Mill	Direct	1924	Bethlehem Steel Corp.	Lackawanna, N. Y.	W
1843	5000	82	2200	60	21″ Continuous Bar & Billet Mill	Direct	1928	Columbia Steel Co.	Pittsburgh, Cal.	W
1844	5000	82	2200	60	21″ Continuous Bar & Billet Mill	Direct	1928	Columbia Steel Co.	Pittsburgh, Cal.	W
1845	5000	99	13200	60	18″ Billet Mill	Direct	1925	Ford Motor Company	Detroit, Mich.	W
1846	5000	100	2200	60	19″ Cont. Sheet Bar Mill	Direct	1927	Continental Steel Corp.	Kokomo, Ind.	GE
1847	5000	197	2200	60	132″ Plate Mill	Geared	1917	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
1848	5000	240	2200	60	51″ Piercing Mill	Direct	1927	Standard Seamless Tube Co.	Economy, Pa.	GE
1849	*5000	300	6600	60	Bar Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	W
1850	5000	370	6600	25	132″ Plate Mill	Geared	1923	Illinois Steel Co.	South Chicago, Ill.	W
1851	5000	370	6600	25	90″ Plate Mill	Geared	1923	Illinois Steel Co.	South Chicago, Ill.	W
1852	5000	450	2300	60	18″ Continuous Sheet Bar and Billet Mill	Geared	1919	Wheeling Steel Corporation	Portsmouth, Ohio	GE
1853	5000–4000–3000	450–360–270	2200	60	16″ Hot Strip Mill	Geared	1925	Trumbull Steel Co.	Warren, Ohio	GE
1854	5000	514	6600	60	18″ Billet Mill	Geared	1928	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
1855	5000	514	6600	60	18″ Sheet Bar Mill	Geared	1928	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
1856	5000	595	6600	60	28″ 3 Stand Rail	Coupled	1921	Tennessee Coal, Iron & R. R. Co.	Birmingham, Ala.	AC
1857	5000	594	6600	60	Sheet & Billet Mill	Geared	1924	Tennessee Coal, Iron & R. R. Co.	Birmingham, Ala.	GE
1858	5500–4400–3400	170–136–105	6600	25	20″ Hot Strip Mill	Direct	1920	Illinois Steel Co.	Gary, Ind.	GE
1859	5500	370	6600	25	16″ Cont. Skelp Mill	Geared	1924	Gary Tube Co.	Gary, Ind.	AC
1860	5600	60–180	600	d.c.	14″–18″ Merchant Mill	Geared	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
1861	5610–4500–3370	156–125–93.6	6600	25	12″ Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, O.	GE
1862	5750	94	6600	25	21″ Cont. Billet Mill	Direct	1914	McKinney Steel Co.	Cleveland, Ohio	GE
1863	5750	94	6600	25	18″ Bar Mill	Direct	1915	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
1864	5750	94	6600	25	21″ Bar Mill	Direct	1921	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
1865	5750	94	6600	25	18″ Billet Mill	Geared	1923	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
1866	5750	94	6600	25	21″ Billet Mill	Geared	1923	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
1867	6000	40–120	600	d.c.	44″ Blooming Mill	Direct	1919	Bethlehem Steel Co.	Steelton, Pa.	W
1868	6000	60–120	700	d.c.	52″ Structural Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
1869	6000	75	6600	25	40″ Rail Mill	Direct	1906	Illinois Steel Co.	Gary, Ind.	GE
1870	6000	75–140	750	d.c.	28″ Structural Mill	Direct	1928	Illinois Steel Co.	South Chicago, Ill.	GE
1871	6000	82	6600	25	28″ Rail Mill	Geared	1914	Minnesota Steel Co.	Duluth, Minn.	W
1872	6000	83	6600	25	28″ Rail Mill	Direct	1906	Illinois Steel Co.	Gary, Ind.	GE
1873	6000	83	6600	25	32″ Billet Mill	Direct	1907	Illinois Steel Co.	Gary, Ind.	GE
1874	6000	83	6600	25	24″ Billet Mill	Direct	1907	Illinois Steel Co.	Gary, Ind.	GE
1875	6000	83	6600	25	18″ Billet Mill	Direct	1907	Illinois Steel Co.	Gary, Ind.	GE
1876	6000	83	6600	25	18″ Sheet Bar Mill	Direct	1910	Illinois Steel Co.	Gary, Ind.	GE
1877	6000	88	6600	25	28″ Rail Mill	Direct	1906	Illinois Steel Co.	Gary, Ind.	GE
1878	6000	98	6600	25	28″–32″ Structural Mill	Direct	1924	Carnegie Steel Co.	Homestead, Pa.	W
1879	6000	294	2200	60	Billet Mill	Geared	1927	Interstate Iron & Steel Co.	Chicago, Ill.	AC
1880	6000–6000	400–317	2200	60	24″–18″ Billet Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
1881	6250	368	2200	25	24″ Cont. Billet Mill	Geared	1922	Inland Steel Co.	Indiana Harbor, Ind.	W
1882	6500	40–120	600	d.c.	40″ Blooming Mill	Direct	1915	Inland Steel Co.	Indiana Harbor, Ind.	W
1883	6500	50	600	d.c.	36″ Blooming Mill	Direct	1916	Trumbull Steel Co.	Warren, Ohio	GE
1884	6500	50	600	d.c.	40″ Blooming Mill	Direct	1916	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
1885	6500	50	600	d.c.	40″ Blooming Mill	Direct	1922	Otis Steel Co.	Cleveland, Ohio	GE
1886	6500	60–140	700	d.c.	35″ Rev. Blooming Mill	Direct	1927	Illinois Steel Co.	So. Chicago, Ill.	W
1887	6500–4500	107–53	6600	25	60″ 3 High Universal Plate Mill	Direct	1909	Illinois Steel Co.	Gary, Ind.	GE
1888	6500	187.5	6600	25	26″ x 21″ Cont.	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	GE
1889	6700–5000–3320	500–375–250	6600	25	26″ x 21″ Cont.	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	GE
1890	7000	40–120	700	d.c.	Blooming Mill	Coupled	1925	Illinois Steel Co.	South Chicago, Ill.	AC
1891	7000	40–80	750	d.c.	54″ Rev. Blooming Mill	Direct	1926	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
1892	7000	0–50–120	700	d.c.	44″ Blooming Mill	Direct	1924	Carnegie Steel Co.	Homestead, Pa.	W
1893	7000	50–120	700	d.c.	40″ Rev. Blooming Mill	Direct	1923	Bethlehem Steel Co.	Lackawanna, N. Y.	W
1894	7000	50–120	700	d.c.	40″ Blooming Mill	Direct	1924	International Harvester Co.	Chicago, Ill.	W
1895	7000	50–120	700	d.c.	36″ Rev. Rougher Mill	Direct	1925	Inland Steel Co.	Indiana Harbor, Ind.	W
1896	7000	50–120	700	d.c.	52″ Structural Mill	Direct	1925	Carnegie Steel Co.	Homestead, Pa.	W
1897	7000	50–120	700	d.c.	52″ Structural Mill	Direct	1925	Carnegie Steel Co.	Homestead, Pa.	W
1898	7000	50–100	650	d.c.	46″ Slabbing Mill	Direct	1925	Bethlehem Steel Co.	Sparrows Point, Md.	GE
1899	7000	0–50–120	700	d.c.	40″ Rev. Blooming Mill	Direct	1926	Forged Steel Wheel Co.	Butler, Pa.	W
1900	7000	50–120	750	d.c.	44″ Blooming Mill	Direct	1927	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
1901	7000	55	900	d.c.	45″ Blooming Mill	Direct	1917	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	GE
1902	7000	50–100	700	d.c.	60″ Universal Plate Mill	Direct	1919	Bethlehem Steel Co.	Sparrows Pt., Md.	W
1903	7000	50–100	750	d.c.	Slabbing Mill	Direct	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
1904	7000	50–120	750	d.c.	40″ Blooming Mill	Direct	1928	Illinois Steel Co.	South Chicago, Ill.	GE
1905	7000	50–130	700	d.c.	40″ Blooming Mill	Direct	1928	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
1907	7000	50–80	700	d.c.	52″ Structural Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
1908	7000	50–120	770	d.c.	40″ Blooming Mill	Direct	1929	Great Lakes Steel Co.	Detroit, Mich.	W
1909	7000	50–120	700	d.c.	40″ Blooming Mill	Direct	1929	Gulf States Steel Co.	Alabama City, Ala.	W

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1910	7000	50–100	650	d.c.	40″ x 80″ Rev. Slabbing Mill	Direct	1929	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
1911	7000	65–100	750	d.c.	48″ Rev. Structural Mill	Direct	1926	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
1912	7000	65–100	750	d.c.	48″ Rev. Structural Mill	Direct	1926	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
1913	7000	81.7	6600	25	160″ Plate Mill	Direct	1917	Illinois Steel Co.	Gary, Ind.	W
1914	7500–4040	250–134	2200	60	21″ Continuous Sheet Bar and Skelp Mill	Geared	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
1915	7500	375	2200	25	19″ Continuous Mill	Geared	1926	Inland Steel Co.	Indiana Harbor, Ind.	W
1916	8000	40–120	700	d.c.	54″ Blooming Mill	Direct	1925	Carnegie Steel Co.	Homestead, Pa.	W
1917	8000	50–120	700	d.c.	35″ Blooming Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
1918	8000	150	600	d.c.	28″ Rail Mill	Direct	1917	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
1919	8000	240	13200	60	Interrupted Continuous Blooming Mill	Geared	1923	Ford Motor Co.	Detroit, Mich.	GE
1920	9000	107	6600	25	Continuous Billet Bar Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	GE

RAIL AND STRUCTURAL MILL DRIVES

No.	Horse Power	R.P.M.	Voltage	Current	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1	300	500	220	25	Slitting Mill	Geared	1928	Kalman Steel Co.	Blasdell, N. Y.	GE
2	*300	900	2200	60	Rail Rerolling Mill	Geared	1929	Bancroft Martin Co.	Portland, Me.	GE
3	400	125	230	d.c.	12″ Structural Mill	Direct	1919	Eastern Steel Co.	Pottsville, Pa.	W
4	500	250–600	250	d.c.	12–9″ Mill	Coupled	1925	Bethlehem Steel Co.	Johnstown, Pa.	AC
5	500	257	2300	60	Rail Mill	Geared	1928	West Va. Rail Co.	Huntington, W. Va.	AC
6	600	720	4000	60	Rail Rerolling	Geared	1927	Northern Steel Co.	Medford, Mass.	GE
7	600	885	2300	60	Rail Mill	Geared	1928	West Va. Rail Co.	Huntington, W. Va.	AC
8	750	500	230	d.c.	14″ Rail Rerolling Mill	Geared	1925	Ford Motor Co.	River Rouge, Mich.	AC
9	800	900	2300	60	Rail Rerolling Mill	Geared	1929	Sweets Steel Co.		GE
10	900	425–640	250	d.c.	12″ 10–Mill	Coupled	1925	Bethlehem Steel Co.	Johnstown, Pa.	AC
11	1000	133	2200	25	Structural (Finish) Mill	Direct	1910	Illinois Steel Co.	South Chicago, Ill.	W
12	1000	200–480	250	d.c.	12–9″ Mill	Geared	1925	Bethlehem Steel Co.	Johnstown, Pa.	AC
13	1000	200–480	250	d.c.	12–9″ Mill	Geared	1925	Bethlehem Steel Co.	Johnstown, Pa.	AC
14	1000–2000	200–400–600	250	d.c.	12–10″ Gautier Mill	Geared	1925	Bethlehem Steel Co.	Johnstown, Pa.	AC
15	1000	225–168	4000	60	Rail Rerolling Mill	Direct	1926	Inland Steel Co.	Indiana Harbor, Ind.	GE
16	1000	225–168	4000	60	Rail Rerolling Mill	Direct	1926	Inland Steel Co.	Indiana Harbor, Ind.	GE
17	1000	225	2300	60	Rail Mill	Geared	1928	West Va. Rail Co.	Huntington, W. Va.	AC
18	1000	590–495	5600	60	24″ Structural Mill	Geared	1917	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	W
19	1000	720	4000	60	18″ 2-Stand Rerolling Rail Mill	Geared	1923	Buckeye Rolling Mill Co.	Newark, Ohio	GE
20	1000	885	2200	60	Rail Rerolling	Geared	1928	Danville Structural	Danville, Ky.	W
21	1200	450	6600	60	Rail Mill, Finishing Stand	Geared	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
22	1200	500	2200	25	28″ Rail Mill	Geared	1914	Bethlehem Steel Co.	Steelton, Pa.	GE
23	1350–1000	214–161	4400	25	Rail Rerolling Mill	Direct	1926	Buffalo Steel Co.	Tonawanda, N. Y.	GE
24	1350–1000	214–161	4400	25	Rail Rerolling Mill	Direct	1926	Buffalo Steel Co.	Tonawanda, N. Y.	GE
25	1500	65–225	750	d.c.	48″ Rev. Structural Mill	Direct	1926	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
26	1500	65–225	750	d.c.	48″ Rev. Structural Mill	Direct	1926	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
27	1500	100–125	220	d.c.	Light Rail Mill	Direct	1905	Carnegie Steel Co.	Bessemer, Pa.	W
28	1500	100–125	220	d.c.	Light Rail Mill	Direct	1905	Carnegie Steel Co.	Bessemer, Pa.	W
29	1500	133–81.5	6600	25	18″ Structural Mill	Direct	1915	Bethlehem Steel Co.	Bethlehem, Pa.	W
30	1500	150–300	250	d.c.	18-14″ Structural Mill	Direct	1924	Bethlehem Steel Corporation	Johnstown, Pa.	AC
31	1500	150–300	250	d.c.	18-14″ Structural Mill	Direct	1924	Bethlehem Steel Corporation	Johnstown, Pa.	AC
32	1500–1250–1000	360–300–240	2200	25	28″ Rail Mill	Geared	1920	Bethlehem Steel Co.	Steelton, Pa.	GE
33	1500	600	2200	60	Light Rail Mill	Geared	1919	West Va. Rail Co.	Huntington, W. Va.	AC
34	1700	250–500	250	d.c.	12–10″ Mill	Geared	1925	Bethlehem Steel Co.	Johnstown, Pa.	AC
35	1750	150–300	230	d.c.	18-14″ Structural Mill	Direct	1924	Bethlehem Steel Corp.	Lackawanna, N. Y.	AC
36	1800	120– 80	2200	25	Light Rail Mill	Direct	1905	Illinois Steel Co.	South Chicago, Ill.	W
37	1800	120– 80	2200	25	Light Rail Mill	Direct	1905	Illinois Steel Co.	South Chicago, Ill.	W
38	1800	150–300	250	d.c.	18-14″ Structural Mill	Direct	1924	Bethlehem Steel Co.	Lackawanna, N. Y.	AC
39	1800	366	2200	25	22″ Structural Mill	Geared	1919	Scullin Steel Co.	St. Louis, Mo.	W
40	2000	0–57–163	700	d.c.	52″ Struct. Edging Mill	Direct	1926	Carnegie Steel Co.	Homestead, Pa.	W
41	2000	0–57–163	700	d.c.	52″ Struct. Edging Mill	Direct	1926	Carnegie Steel Co.	Homestead, Pa.	W
42	2000	68	6600	25	28″ Rail Mill	Direct	1906	Illinois Steel Co.	Gary, Ind.	GE
43	2000	75–225	700	d.c.	52″ Structural Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
44	2000	75–225	700	d.c.	52″ Structural Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
45	2000 2000–2000	100–83.3–65	6600	25	12″ Structural Mill	Direct	1916	Bethlehem Steel Co.	Bethlehem, Pa.	GE
46	2000	200	2200	60	Rail Rerolling	Direct	1928	Danville Structural	Danville, Ky.	W
47	2000	214	6600	25	40″ Rail Mill	Geared	1906	Illinois Steel Co.	Gary, Ind.	GE
48	2000	214	6600	25	40″ Rail Mill	Geared	1906	Illinois Steel Co.	Gary, Ind.	GE
49	2000	368	6600	25	20″ Structural Mill	Geared	1929	Bethlehem Steel Co.	Steelton, Pa.	W
50	2000	450	6600	60	Rail Mill	Geared	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
51	2000	450	6600	60	25″ Structural Mill	Geared	1926	Colorado Fuel & Iron Co.	Minnequa, Col.	GE
52	2000	600	6600	60	Fin. Stand of 24″ Structural Mill	Geared	1924	Tenn. Coal, Iron & R.R. Co.	Fairfield, Ala.	GE
53	2500	82	6600	60	28″ Structural Mill	Direct	1917	Tenn. Coal, Iron & R.R. Co.	Fairfield, Ala.	GE
54	3000	91	2200	25	Structural (Rough.) Mill	Geared	1910	Illinois Steel Co.	South Chicago, Ill.	W
55	3000	150–300	250	d.c.	18-14″ Structural Mill	Direct	1924	Bethlehem Steel Corp.	Johnstown, Pa.	AC
56	3000	150–300	250	d.c.	18-14″ Structural Mill	Direct	1924	Bethlehem Steel Corp.	Johnstown, Pa.	AC
57	3000 3000–3000	155–144–130	6600	60	24″ Structural Mill	Direct	1917	Tenn. Coal, Iron & R.R. Co.	Fairfield, Ala.	GE
58	*3000	300	2200	25	52″ Structural Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
59	3000	325–485	600	d.c.	24″ Structural Mill	Geared	1923	Phoenix Iron Co.	Phoenixville, Pa.	W
60	3000	360	6600	60	28″ Rail Mill	Geared	1919	Dominion Iron & Steel Co.	Sydney, N. S.	GE
61	3000	450	6600	60	Rail Mill	Geared	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
62	3000	450	6600	60	25″ Structural Mill	Geared	1926	Colorado Fuel & Iron Co.	Minnequa, Col.	GE
63	3000	500	6600	25	26″ Rail Mill	Geared	1924	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
64	3000	500	6600	25	26″ Rail Mill	Geared	1924	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
65	3200	50–120	700	d.c.	34″ Rev. Struct. (Rough.)	Direct	1915	Inland Steel Co.	Indiana Harbor, Ind.	W
66	3200	50–120	700	d.c.	28″ Structural (Fin.) Mill	Direct	1915	Inland Steel Co.	Indiana Harbor, Ind.	W
67	3500	50–120	700	d.c.	35″ Struct. Mill (Rough.)	Direct	1924	Bethlehem Steel Corp.	Lackawanna, N. Y.	W
68	3500	50–100	650	d.c.	Rail Mill	Direct	1925	Bethlehem Steel Co.	Steelton, Pa.	GE
69	3500	50–120	750	d.c.	32″ Structural Mill	Direct	1928	Illinois Steel Co.	So. Chicago, Ill.	GE
70	3500	150–300	230	d.c.	18-14″ Structural Mill	Direct	1924	Bethlehem Steel Corp.	Lackawanna, N. Y.	AC
71	3600	150–300	250	d.c.	18-14″ Structural Mill	Direct	1924	Bethlehem Steel Co.	Lackawanna, N. Y.	AC
72	4000	83	6600	60	33″ Structural Mill	Direct	1920	Carnegie Steel Co.	Homestead, Pa.	GE
73	4000	375	6600	25	Rail Mill	Geared	1925	Bethlehem Steel Co.	Steelton, Pa.	GE
74	5000	50–120	700	d.c.	36″ Struct. (Rough.) Mill	Direct	1924	Carnegie Steel Co.	Homestead, Pa.	W
75	5000	50–120	900	d.c.	36″ Roughing Mill	Direct	1927	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
76	5000	75–150	700	d.c.	28″ Structural (Fin.) Mill	Direct	1924	Bethlehem Steel Corp.	Lackawanna, N. Y	W
77	5000	595	6600	60	28″ 3 Stand Rail Mill	Coupled	1921	Tenn. Coal, Iron & R.R. Co.	Birmingham, Ala.	AC
78	6000	60–120	700	d.c.	52″ Structural Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
79	6000	75	6600	25	40″ Rail Mill	Direct	1906	Illinois Steel Co.	Gary, Ind.	GE
80	6000	75–140	750	d.c.	28″ Structural Mill	Direct	1928	Illinois Steel Co.	So. Chicago, Ill.	GE
81	6000	83	6600	25	28″ Rail Mill	Direct	1906	Illinois Steel Co.	Gary, Ind.	GE
82	6000	83	6600	25	28″ Rail Mill	Geared	1913	Minnesota Steel Co.	Duluth, Minn.	W
83	6000	88	6600	25	28″ Rail Mill	Direct	1906	Illinois Steel Co.	Gary, Ind.	GE

RAIL AND STRUCTURAL MILL DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd By
84	6000	98	6600	25	28"-32" Structural Mill	Direct	1924	Carnegie Steel Co.	Homestead, Pa.	W
85	7000	50–150	700	d.c.	52" Structural Mill	Direct	1925	Carnegie Steel Co.	Homestead, Pa.	W
86	7000	50–150	700	d.c.	52" Structural Mill	Direct	1925	Carnegie Steel Co.	Homestead, Pa.	W
87	7000	50–80	700	d.c.	52" Structural Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
88	7000	65–100	750	d.c.	48" Rev. Structural Mill	Direct	1926	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
89	7000	65–100	750	d.c.	48" Rev. Structural Mill	Direct	1926	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
90	8000	150	600	d.c.	28" Rail Mill	Direct	1917	Bethlehem Steel Co.	Lackawanna, N. Y.	GE

PLATE MILL DRIVES

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1	300	575	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
2	300	575	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
3	300	575	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
4	300	575	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
5	300	575	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
6	300	575	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
7	300	575	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
8	500	200	500	d.c.	78" Rev. Brass Plate Mill	Geared	1920	West Virginia Metal Products Co.	Fairmont, W. Va.	W
9	500	575	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
10	500	575	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
11	600	885	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
12	600	885	2200	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
13	800	20	230	d.c.	32" x 48" Plate Mill	Coupled	1910	American Sheet & Tin Plate Co.	Gary, Ind.	W
14	800	20	230	d.c.	32" x 48" Plate Mill	Coupled	1910	American Sheet & Tin Plate Co.	Gary, Ind.	CW
15	800	0–37–70	500	d.c.	Plate Mill	Coupled	1919	Universal Rolling Mill Co.	Bridgeville, Pa.	CAC
16	1000	50–175	600	d.c.	24" Rev. Universal Plate	Direct	1916	Central Steel Co.	Massillon, Ohio	W
17	1000	375	2200	25	54" Plate Mill	Geared	1927	Alan Wood Iron & Steel Co.	Conshohocken, Pa.	GE
18	1100–1500	91	2200	25	84" Plate (Finishing) Mill	Direct	1909	American Sheet & Tin Plate Co.	Gary, Ind.	W
19	1200	25–50	330	d.c.	Reversing Plate Mill	Direct	1926	Lukens Steel Co.	Coatesville, Pa.	GE
20	1200	214	2200	25	84" Plate mill	Geared	1913	Otis Steel Co.	Cleveland, Ohio	GE
21	1200	500	2200	25	72" Jobbing Plate Mill	Geared	1926	Alan Wood Iron & Steel Co.	Coshocton, Pa.	GE
22	1600	214	2200	25	84" Plate Mill	Geared	1913	Otis Steel Co.	Cleveland, Ohio	GE
23	1600	244	2200	25	84" Plate (Rough.) Mill	Geared	1912	Alan Wood Iron & Steel Co.	Ivy Rock, Pa.	W
24	1600	244	2200	25	84" Plate (Finishing) Mill	Geared	1912	Alan Wood Iron & Steel Co.	Ivy Rock, Pa.	W
25	1800	40	600	d.c.	84" Reversing Plate Mill	Direct	1917	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
26	2000	83	6600	25	96" Plate Mill	Coupled	1918	Youngstown Sheet & Tube Co.	Youngstown, O.	AC
27	2000	83	6600	25	84" Plate Mill	Coupled	1918	Youngstown Sheet & Tube Co.,	Youngstown, O.	AC
28	2000	214	2200	25	Jobbing plate mill	Geared	1925	Otis Steel Co.	Cleveland, Ohio	W
29	2000	244	2200	25	90" Plate Mill	Rope	1912	Inland Steel Co.	Indiana Harbor, Ind.	W
30	2000	375	2200	25	84" Plate Mill	Geared	1916	Donner Steel Co.	Buffalo, N. Y.	GE
31	2000	505	6600	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
32	2000	505	6600	60	Plate Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
33	2100	50–125	700	d.c.	42" Rev. Univ. Plate Mill	Direct	1916	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
34	2200	50–120	600	d.c.	40" Rev. Univ. Plate Mill	Direct	1919	Dominion Foundrys & Steel Co.	Hamilton, Ont.	W
35	2500	53–80	660	d.c.	Reversing Plate Mill	Direct	1926	Lukens Steel Co.	Coatesville, Pa.	GE
36	2500	235	2200	60	84" Plate (Finishing) Mill	Geared	1917	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
37	3000	245	2200	25	90" Plate Mill	Geared	1920	Inland Steel Co.	Indiana Harbor, Ind.	W
38	3000	235	2200	50	100" Plate Mill	Geared	1922	Nat'l Enameling & Stamping Co.	St. Louis, Mo.	W
39	3100	70–150	600	d.c.	Universal Plate Mill	Direct	1925	International Harvester Co.	Chicago, Ill.	W
40	3750	500	2200	60	112" 3 High Plate Mill	Geared	1925	Lukens Steel Company	Coatesville, Pa.	W
41	4000	0–150	575	d.c.	36" Rev. Univ. Plate Mill	Direct	1905	Illinois Steel Co.	South Chicago, Ill.	W
42	4000	80–160	800	d.c.	32" Universal Plate Mill	Direct	1929	Gulf States Steel Co.	Alabama City, Ala.	W
43	4000	82	6600	60	110" Plate Mill	Direct	1917	Tenn. Coal, Iron & R. R. Co.	Fairfield, Ala.	GE
44	4000	83	6600	25	110" Plate Mill	Direct	1916	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
45	4000	83	6600	25	110" Plate Mill	Direct	1917	Carnegie Steel Co.	Homestead, Pa.	GE
46	4000	82	6600	60	110" Plate Mill	Direct	1918	Dominion Iron & Steel Corp.	Sydney, N. S.	GE
47	4000	200	6600	50	120" Plate Mill	Geared	1920	Worth Steel Co.	Claymont, Del.	GE
48	4500	450	2200	60	152" Plate Mill	Geared	1926	Bethlehem Steel Co.	Coatesville, Pa.	GE
49	5000	75–100	700	d.c.	48" Rev. Univ. Plate Mill	Direct	1923	Bethlehem Steel Co.	Lackawanna, N. Y.	W
50	5000	197	2200	60	132" Plate Mill	Geared	1917	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
51	5000	370	6600	25	132" Plate Mill	Geared	1922	Illinois Steel Co.	South Chicago, Ill.	W
52	5000	370	6600	25	90" Plate Mill	Geared	1922	Illinois Steel Co.	South Chicago, Ill.	W
53	6500–4500	107–53	6600	25	60" 3 High Univ. Plate	Direct	1909	Illinois Steel Co.	Gary, Ind.	GE
54	7000	0–100	700	d.c.	60" Rev. Univ. Plate Mill	Direct	1919	Bethlehem Steel Co.	Sparrows Point, Md.	W
55	7000	81.7	6600	25	160" Plate Mill	Direct	1916	Illinois Steel Co.	Gary, Ind.	W

BLOOMING MILL DRIVES

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1	500	190	230	d.c.	24" Blooming Mill	Geared	1910	Sharon Steel Hoop Co.	Sharon, Pa.	GE
2	600	720	2200	60	18" Breakdown Mill	Geared	1928	Kilby Car & Foundry Co.	Anniston, Ala.	GE
3	800-800-800	720-600-480	2200	60	3-High Blooming Mill	Geared	1927	Copperweld Steel Co.	Glassport, Pa.	GE
4	850	710	2200	60	20" Blooming Mill	Geared	1923	Washburn Wire Co.	Phillipsdale, R. I.	W
5	1200	585	2200	60	24" Blooming Mill	Geared	1919	McConway Torley Co.	Pittsburgh, Pa.	W
6	1500	355	2200	60	35" Blooming Mill	Geared	1924	Timken Roller Bearing Co.	Canton, Ohio	W
7	1500	375	2200	25	36" 3 High Blooming Mill	Geared	1920	Atlas Crucible Steel Co.	Dunkirk, N. Y.	GE
8	1650	112.5–270	750	d.c.	Slabbing Mill	Direct	1928	Wheeling Steel Corporation	Steubenville, O.	GE
9	2000	75	2200	25	Blooming Mill	Direct	1916	Wickwire Spencer Steel Co.	Buffalo, N. Y.	GE
10	2000	240	2200	60	32" Blooming Mill	Geared	1915	Mansfield Sheet & Tin Plate Co.	Mansfield, Ohio	GE
11	2100	47–120	700	d.c.	34" Rev. Blooming Mill	Direct	1916	Penn Seaboard Steel Corporation	New Castle, Del.	W
12	2200	70–150	600	d.c.	28" Rev. Blooming Mill	Direct	1920	Atlantic Steel Co.	Atlanta, Ga.	W
13	2500	100–300	650	d.c.	40" x 80" Rev. Slabbing	Geared	1929	Bethlehem Steel Co.	Sparrows Point, Md.	GE
14	2900	47–120	700	d.c	34" Rev. Blooming Mill	Direct	1917	Sharon Steel Hoop Co.	Youngstown, Ohio	W
15	3250	40	500	d.c.	36" Blooming Mill	Direct	1916	American Rolling Mill Co.	Ashland, Ky.	GE
16	3250	40	500	d.c.	34" Blooming Mill	Direct	1916	Keystone Steel & Wire Co.	Peoria, Ill.	GE
17	3500	70–100	525	d.c.	32" Rev. Blooming Mill	Direct	1913	Steel Company of Canada	Hamilton, Ont.	W
18	3500	50– 75	700	d.c.	34" Rev. Blooming Mill	Direct	1914	Central Steel Co.	Massillon, Ohio	W
19	3500	50–120	700	d.c.	34" Blooming Mill	Direct	1925	Kokomo Steel & Wire Co.	Kokomo, Ind.	W
20	3500	50–120	700	d.c.	36" Blooming Mill	Direct	1925	Phoenix Iron Co.	Phoenixville, Pa.	W
21	3600	40– 90	600	d.c.	35" Rev. Blooming Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	W
22	3600	40– 90	600	d.c.	40" Rev. Blooming Mill	Direct	1918	Illinois Steel Co.	Gary, Ind.	W

BLOOMING MILL DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
23	3750	50–130	700	d.c.	Blooming Mill	Direct	1927	Central Alloy Steel Co.	Massillon, Ohio	AC
24	4000	58–140	750	d.c.	34″ Reversing Blooming	Direct	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
25	4000	60–140	900	d.c.	46″ Rev. Universal Mill	Direct	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
26	4000	60–140	900	l.c.	36″ Rev. Blooming Mill	Direct	1929	Corrigan-McKinney Steel Co.	Cleveland, Ohio	GE
27	4000	0– 80	1200	d.c.	34″ Blooming Mill	Coupled	1912	Algoma Steel Co.	Sault Ste. Marie,Can.	AC
28	5000	30–120	600	d.c.	40″ Rev. Blooming Mill	Direct	1916	National Tube Co.	Lorain, Ohio	W
29	5000	40–80	700	l.c.	54″ Blooming Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
30	5000	40–80	700	l.c.	54″ Blooming Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
31	5000	50–120	600	d.c.	35″ Rev. Blooming Mill	Direct	1915	United Alloy Steel Corporation	Canton, Ohio	W
32	5000	50–120	600	d.c.	Blooming Mill	Direct	1928	Aluminum Co. of America	Massena, N. Y.	AC
33	5000	50–130	900	l.c.	40″ Rev. Bloomer Mill	Direct	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
34	6500	40–120	600	l.c.	40″ Rev. Blooming Mill	Direct	1915	Inland Steel Co.	Indiana Harbor, Ind.	W
35	6500	50	600	d.c.	36″ Blooming Mill	Direct	1916	Trumbull Steel Co.	Warren, Ohio	GE
36	6500	50	600	d.c.	40″ Blooming Mill	Direct	1916	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
37	6500	50	600	d.c.	40″ Blooming Mill	Direct	1922	Otis Steel Co.	Cleveland, Ohio	GE
38	6500	60–140	700	d.c.	35″ Rev. Blooming Mill	Direct	1927	Illinois Steel Co.	So. Chicago, Ill.	W
39	7000	40–120	700	d.c.	Blooming Mill	Coupled	1925	Illinois Steel Co.	South Chicago, Ill.	AC
40	7000	50–120	700	l.c.	40″ Rev. Blooming Mill	Direct	1923	Bethlehem Steel Co.	Lackawanna, N. Y.	W
41	7000	50–120	700	d.c.	44″ Blooming Mill	Direct	1924	Carnegie Steel Co.	Homestead, Pa.	W
42	7000	50–120	700	d.c.	40″ Blooming Mill	Direct	1924	International Harvester Co., Wisconsin Steel	Chicago, Ill.	W
43	7000	50–120	700	l.c.	36″ Rev. Rougher Mill	Direct	1925	Inland Steel Co.	Indiana Harbor, Ind.	W
44	7000	50–100	650	l.c.	46″ Slabbing Mill	Direct	1925	Bethlehem Steel Co.	Sparrows Point, Md.	GE
45	7000	0–50–120	700	d.c.	40″ Rev. Blooming Mill	Direct	1926	Forged Steel Wheel Co.	Butler, Pa.	W
46	7000	40–80	750	d.c.	54″ Rev. Blooming Mill	Direct	1926	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
47	7000	50–120	750	d.c.	44″ Blooming Mill	Direct	1927	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
48	7000	50–130	700	d.c.	40″ Blooming Mill	Direct	1928	Youngstown Sheet & Tube Co.	Youngstown, O.	W
49	7000	50–120	750	l.c.	40″ Blooming Mill	Direct	1928	Illinois Steel Co.	So. Chicago, Ill.	GE
50	7000	50–100	750	d.c.	Slabbing Mill	Direct	1928	Wheeling Steel Corporation	Steubenville, O.	GE
51	7000	50–120	700	d.c.	40″ Blooming Mill	Direct	1929	Gulf States Steel Co.	Alabama City, Ala.	W
52	7000	50–120	770	l.c.	40″ Blooming Mill	Direct	1929	Great Lakes Steel Co.	Detroit, Mich.	W
53	7000	50–100	650	l.c.	40″ x 80″ Rev. Slabbing Mill	Direct	1929	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
54	7000	55	900	d.c.	45″ Blooming Mill	Direct	1917	Tenn. Coal, Iron & R. R. Co.	Fairfield, Ala.	GE
55	8000	40–120	700	d.c.	54″ Blooming Mill	Direct	1925	Carnegie Steel Co.	Homestead, Pa.	W
56	8000	50–120	700	l.c.	35″ Blooming Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
57	8000	240	13200	60	Interrupted Continuous Blooming Mill	Geared	1923	Ford Motor Co.	Detroit, Mich.	GE

SHEET AND TIN PLATE DRIVES

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd By
1	300	250	440	25	Sheet Mill	Geared	1910	Simonds Mfg. Co.	Lockport, N. Y.	GE
2	300	325–650	220	d.c.	Sheet Mill		1919	Aluminum Co. of America	New Kensington, Pa.	AC
3	300	505	2200	60	20″ Sheet & Strip Jobbing Mill	Geared	1926	Indiana Rolling Mill Co.	New Castle, Ind.	W
4	300	505	2200	60	20″ Sheet & Strip Jobbing Mill	Geared	1926	Indiana Rolling Mill Co.	New Castle, Ind.	W
5	350	320	2200	60	Sheet Mill	Geared	1917	Universal Steel Co.	Bridgeville, Pa.	W
6	350	400–600	220	d.c.	Hot Mill	Geared	1913	Bethlehem Steel Corp.	Lackawanna, N. Y.	CW
7	350	400–600	220	d.c.	Hot Mill	Geared	1913	Bethlehem Steel Corp.	Lackawanna, N. Y.	CW
8	350	485	2200	25	Cont. Sheet Mill	Geared	1926	American Sheet & Tin Plate Co.	Gary, Ind.	AC
9	350	485	2200	25	Cont. Sheet Mill	Geared	1926	American Sheet & Tin Plate Co.	Gary, Ind.	AC
10	400	360	2300	60	Sheet Mill, Cold Rolls	Geared	1925	Thomas Sheet Steel Co.	Niles, Ohio	GE
11	*400	514	440	60	Sheet Mill	Geared	1929	Aluminum Products Co.	LaGrange, Ill.	W
12	500	300	2200	60	Sheet Mill		1915	U. S. Aluminum Co.	New Kensington, Pa.	AC
13	500	300	2200	60	Sheet Mill		1915	U. S. A uminum Co.	New Kensington, Pa.	AC
14	500	300	2200	60	Sheet Mill		1915	U. S. Aluminum Co.	New Kensington, Pa.	AC
15	500	450	2200	60	Sheet Mill	Geared	1915	American Brass Co.	Torrington, Conn.	GE
16	500	600	2200	60	Continuous Sheet Mill	Geared	1926	American Rolling Mill Co.	Ashland, Ky.	W
17	500	720	2300	60	Sheet Mill	Geared	1929	Sessions Engr. Co.	Chicago, Ill.	W
18	600	290	2200	25	60″ Sheet Jobbing Mill	Geared	1927	Allanwood Iron & Steel Co.	Conshochocton, Pa.	W
19	600	300	2200	60	Sheet Mill	Geared	1917	Universal Rolling Mill Co.	Bridgeville, Pa.	AC
20	600	585	2200	60	Sheet Mill	Geared	1928	American Rolling Mill Co.	Ashland, Ky.	W
21	700	320	2200	60	Sheet and Jobbing Mill	Direct	1917	Carbon Steel Co.	Pittsburgh, Pa.	W
22	750	94	2200	25	Sheet Mill	Rope	1912	West Penn Steel Co.	Brackenridge, Pa.	GE
23	750	250	2200	60	Tin Mill	Geared	1914	Weirton Steel Co.	Weirton, W. Va.	W
24	800	214	2200	25	Sheet Mill	Geared	1919	Am. Sheet & Tin Plate Co.	Gary, Ind.	GE
25	800	214	2200	25	Sheet Mill	Geared	1919	Am. Sheet & Tin Plate Co.	Gary, Ind.	GE
26	800	600	2200	60	Hot & Cold Sheet Mill	Geared	1924	American Nickel Co.	Clearfield, Pa.	GE
27	900	94	2200	25	Jobbing Sheet Mill	Rope	1910	Am. Sheet & Tin Plate Co.	Gary, Ind.	GE
28	900	94	2200	25	Jobbing Sheet Mill	Rope	1910	Am. Sheet & Tin Plate Co.	Gary, Ind.	GE
29	1000	83	2200	25	Sheet Mill	Rope	1910	Follansbee Bros.	Follansbee, W. Va.	GE
30	1000	235	2200	60	Cold Rolled Tin Mill	Coupled	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	AC
31	1000	235	2200	60	Cold Rolled Tin Mill	Coupled	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	AC
32	1000	240	440	60	Sheet Mill	Geared	1918	Robertson Iron & Steel Co.	Springfield, Ohio	AC
33	1000	245	2200	25	30″ Sheet Mill	Rope	1910	American Rolling Mill Co.	Middletown, Ohio	W
34	1000	250	6600	25	Sheet Mill	Geared	1919	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
35	1000	250	6600	25	Sheet Mill	Geared	1919	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
36	1000	250	6000	25	Tin Mill	Geared	1919	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
37	1000	250	6600	25	Tin Mill	Geared	1919	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
38	1000	250	2200	25	Sheet Mill	Geared	1920	Otis Steel Co.,	Cleveland, Ohio	AC
39	1000	250	2200	25	Sheet Mill	Geared	1920	Otis Steel Co.	Cleveland, Ohio	AC
40	1000	252	2200	60	Sheet Mill	Geared	1920	American Rolling Mill Co.	Zanesville, Ohio	W
41	1000	300	2200	60	Sheet Mill	Geared	1919	Superior Sheet Steel Co.	Canton, Ohio	GE
42	1000	300	2200	60	Sheet Mill	Geared	1919	Superior Sheet Steel Co.	Canton, Ohio	GE
43	1000	300	2200	60	Sheet Mill	Geared	1920	Milwaukee Rolling Mills Co.	Milwaukee, Wis.	GE
44	1000	300	2200	60	Sheet Mill	Geared	1920	Milwaukee Rolling Mills Co.	Milwaukee, Wis.	GE
45	1000	300	2200	60	Sheet Mill	Geared	1925	Sharon Steel Hoop Co.	Sharon, Pa.	CW
46	1000	300	2200	60	Sheet Mill	Geared	1925	Sharon Steel Hoop Co.	Sharon, Pa.	CW
47	1000	300	2200	60	Sheet Mill	Geared	1925	Sharon Steel Hoop Co.	Sharon, Pa.	CW
48	1000	333	2200	50	36″ Sheet Mill	Geared	1927	Columbia Steel Co.	Torrance, Calif.	GE
49	1000	360	2200	60	Sheet Mill	Geared	1920	Allegheny Steel Co.	Brackenridge, Pa.	GE
50	1000	720	2300	60	Sheet Mill	Geared	1929	Sessions Engr. Co.	Chicago, Ill.	W
51	1000	600	2200	60	Sheet Mill	Geared	1925	American Nickel Corp.	Clearfield, Pa.	GE
52	1150	250	6600	25	Jobbing Sheet Mill	Geared	1913	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
53	1200	214	2200	25	Jobbing Sheet Mill	Geared	1913	Otis Steel Co.	Cleveland, Ohio	GE
54	1200	240	2200	60	Sheet Mill	Geared	1915	Empire Rolling Mills	Cleveland, Ohio	GE
55	1200	240	2200	60	Sheet Mill	Geared	1916	Mahoning Valley Steel Co.	Niles, Ohio	GE

SHEET AND TIN PLATE DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
56	200	240	2200	60	Sheet Mill	Geared	1916	United Alloy Steel Corp.	Canton, Ohio	GE
57	1200	240	2200	60	Sheet Mill	Geared	1917	United Alloy Steel Corp.	Canton, Ohio	GE
58	1200	240	2200	60	Sheet Mill	Geared	1920	Republic Iron & Steel Co.	Youngstown, Ohio	GE
59	1200	240	2200	60	Sheet Mill	Geared	1920	Republic Iron & Steel Co.	Youngstown, Ohio	GE
60	1200	240	440	25	26" Sheet Mill	Rope	1907	Seneca Iron & Steel Co.	Buffalo, N. Y.	W
61	1200	240		60	Hot Sheet Mill	Coupled	1915	Standard Tin Plate Company	Canonsburg, Pa.	CW
62	1200	240		60	Hot Sheet Mill	Coupled	1915	Standard Tin Plate Company	Canonsburg, Pa.	CW
63	1200	240		60	Hot Sheet Mill	Coupled	1915	Standard Tin Plate Company	Canonsburg, Pa.	CW
64	1200	240		60	Hot Sheet Mill	Coupled	1916	Standard Tin Plate Company	Canonsburg, Pa.	CW
65	1200	240		60	Hot Sheet Mill	Coupled	1916	Standard Tin Plate Company	Canonsburg, Pa.	CW
66	1200	244	2200	25	Sheet Mill	Geared	1916	Bethlehem Steel Co.	Sparrows Pt., Md.	W
67	1200	244	2200	25	Sheet Mill	Geared	1916	Bethlehem Steel Co.	Sparrows Pt., Md.	W
68	1200	244	2200	25	Sheet Mill	Geared	1920	American Rolling Mill Co.	Middletown, Ohio	W
69	1200	244	2200	25	Sheet Mill	Geared	1920	American Rolling Mill Co.	Middletown, Ohio	W
70	1200	244	2200	25	Sheet Mill	Geared	1926	American Rolling Mills Co.	Middletown, Ohio	W
71	1200	244	2200	25	Sheet Mill	Geared	1926	American Rolling Mills Co.	Middletown, Ohio	W
72	1200	277	2200	60	Sheet Mill	Geared	1925	Wheeling Steel Corp.	Wheeling, W. Va.	GE
73	1200	295	6600	60	Sheet Mill	Coupled	1922	Weirton Steel Co.	Weirton, W. Va.	AC
74	1200	295	6600	60	Sheet Mill	Coupled	1922	Weirton Steel Co.	Weirton, W. Va.	AC
75	1200	300	4100	60	Sheet Mill	Geared	1920	Chapman Price Steel Co.	Indianapolis, Ind.	GE
76	1200	300	2200	60	Sheet Mill	Geared	1920	Central Steel Co.	Massillon, Ohio	GE
77	1200	300	2200	60	Sheet Mill	Geared	1920	Central Steel Co.	Massillon, Ohio	GE
78	1200	300	2200	60	Sheet Mill	Geared	1924	Thomas Sheet Steel Co.	Niles, Ohio	GE
79	1200	300	2200	60	Sheet Mill	Geared	1924	Thomas Sheet Steel Co.	Niles, Ohio	GE
80	1200	352	2200	60	Sheet Mill	Rope	1917	Mansfield Sheet & Tin Plate Co.	Mansfield, Ohio	W
81	1250	250	6600	25	Hot Tin Mill	Geared	1924	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
82	1250	250	6600	25	Hot Tin Mill	Geared	1924	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
83	1250	250	6600	25	Cold Tin Mill	Geared	1924	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
84	1250	250	6600	25	Hot Tin Mill	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	GE
85	1250	250	6600	25	Hot Tin Mill	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	GE
86	1250	250	6600	25	Cold Tin Mill	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	GE
87	1250	250	6600	25	Sheet Mill	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	GE
88	1400	240	2200	60	Sheet Mill	Geared	1912	Apollo Steel Co.	Apollo, Pa.	GE
89	1500	187	2200	25	Sheet Mill	Chain	1914	National Enamel & Stamp. Co.	Granite City, Ill.	AC
90	1500	210	2200	25	30" Sheet Mill	Rope	1910	American Rolling Mill Co.	Middletown, Ohio	W
91	1500	234	2200	60	Sheet Mill	Geared	1915	Canton Sheet Steel Co.	Canton, Ohio	W
92	1500	234	2200	60	Sheet Mill	Geared	1916	Mansfield Sheet & Tin Plate Co.	Mansfield, Ohio	W
93	1500	234	2200	60	Sheet Mill	Geared	1917	Liberty Steel Co.	Warren, Ohio	W
94	1500	234	2200	60	Sheet Mill	Geared	1919	Mansfield Sheet & Tin Plate Co.	Mansfield, Ohio	W
95	1500	240	2200	60	Sheet Mill	Geared	1922	United Alloy Steel Corp.	Canton, Ohio	GE
96	1500	240	2200	60	Sheet Mill	Geared	1919	Follensbee Bros.	Toronto, Ohio	AC
97	1500	240	2200	60	Sheet Mill	Geared	1919	Follensbee Bros.	Toronto, Ohio	AC
98	1500	240	2200	60	Sheet Mill	Geared	1920	Canton Sheet Steel Co.	Canton, Ohio	AC
99	1500	250	2200	25	Sheet Mill	Geared	1919	Eastern Rolling Mills Co.	Baltimore, Md.	GE
100	1500	250	2200	25	Sheet Mill	Geared	1919	Eastern Rolling Mills Co.	Baltimore, Md.	GE
101	1500	270	2200	60	Sheet Mill	Geared	1914	Youngstown Sheet & Tube Co.	Warren, Ohio	W
102	1500	295	2200	60	Sheet Mill	Geared	1924	Kansas City Bolt & Nut Co.	Kansas City, Mo.	AC
103	1500	300	4600	60	Sheet Mill	Geared	1922	Michigan Steel Corp.	Detroit, Mich.	GE
104	1500	300	4600	60	Sheet Mill	Geared	1924	Michigan Steel Corp.	Detroit, Mich.	GE
105	1500	300	2200	60	Sheet Mill	Geared	1929	Continental Steel Co.	Kokomo, Ind.	GE
106	1500	360	4000	60	Sheet Mill	Geared	1923	Pacific Coast Steel Corp.	So.San Francisco,Cal.	GE
107	1500	360	2200	60	Sheet Mill	Geared	1923	Columbia Steel Co.	Pittsburgh, Cal.	GE
108	1600	94	2200	25	Sheet Mill	Rope	1910	American Sheet & Tin Plate Co.	Gary, Ind.	GE
109	1600	94	2200	25	Sheet Mill	Rope	1910	American Sheet & Tin Plate Co.	Gary, Ind.	GE
110	1600	94	2200	25	Sheet Mill	Rope	1913	American Sheet & Tin Plate Co.	Gary, Ind.	GE
111	1600	94	2200	25	Sheet Mill	Rope	1913	American Sheet & Tin Plate Co.	Gary, Ind.	GE
112	1600	94	2200	25	Tin Mill	Rope	1915	McKeesport Tin Plate Co.	McKeesport, Pa.	GE
113	1600	94	2200	25	Tin Mill	Rope	1915	McKeesport Tin Plate Co.	McKeesport, Pa.	GE
114	1600	94	2200	25	Tin Mill	Rope	1915	McKeesport Tin Plate Co.	McKeesport, Pa.	GE
115	1600	94	2200	25	Tin Mill	Rope	1915	McKeesport Tin Plate Co.	McKeesport, Pa.	GE
116	1600	210	2200	25	Sheet Mill	Geared	1912	Inland Steel Co.	Indiana Harbor, Ind.	W
117	1600	240	2200	60	Sheet Mill	Geared	1919	Falcon Steel Co.	Niles, Ohio	GE
118	1600	250	440	25	Sheet Mill	Geared	1914	Seneca Iron & Steel Co.	Buffalo, N. Y.	GE
119	1600	270	2200	60	Sheet Mill	Geared	1916	Wheeling Steel Corporation	Wheeling, W Va.	W
120	1600	270	2200	60	Sheet Mill	Geared	1916	Wheeling Steel Corporation	Portsmouth, Ohio	W
121	1600	360	2200	60	Sheet Mill	Geared	1929	Allegheny Steel Co.	Brackenridge, Pa.	GE
122	1700	214	2200	25	Sheet Mill	Geared	1915	American Sheet & Tin Plate Co.	Gary, Ind.	GE
123	1700	214	2200	25	Tin Mill	Geared	1915	American Sheet & Tin Plate Co.	Gary, Ind.	GE
124	1700	214	2200	25	Tin Mill	Geared	1915	American Sheet & Tin Plate Co.	Gary, Ind.	GE
125	1700	214	2200	25	Tin Mill	Geared	1918	American Sheet & Tin Plate Co.	Gary, Ind.	GE
126	1700	214	2200	25	Tin Mill	Geared	1918	American Sheet & Tin Plate Co.	Gary, Ind.	GE
127	1700	214	2200	25	Tin Mill	Geared	1918	American Sheet & Tin Plate Co.	Gary, Ind.	GE
128	1700	214	2200	25	Tin Mill	Geared	1919	American Sheet & Tin Plate Co.	Gary, Ind.	GE
129	1700	250	440	25	Hot Sheet Mill	Geared	1925	Seneca Iron & Steel Co.	Buffalo, N. Y.	GE
130	1800	235	2200	60	Sheet Mill	Geared	1915	Trumbull Steel Co.	Warren, Ohio	W
131	1800	240	2200	60	Sheet Mill	Geared	1920	Apollo Steel Co.	Apollo, Pa.	GE
132	1800	253	2200	60	Eight Stand Tin Mill	Coupled	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	AC
133	1800	252	2200	60	Hot Tin Mi	Geared	1928	Columbia Steel Co.	Pittsburgh, Cal.	W
134	1800	270	2200	60	Sheet Mill	Geared	1916	Andrews Steel Co.	Newport, Ky.	W
135	1800	270	2200	60	Sheet Mill	Geared	1916	Andrews Steel Co.	Newport, Ky.	W
136	1800	295	2200	60	32" Hot Roll Sheet Mill	Geared	1926	American Sheet & Tin Plate Co.	Monnessen, Pa.	AC
137	2000	230–460	600	d.c.	Sheet Mill	Geared	1926	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
138	2000	234	2200	60	Sheet Mill	Geared	1919	Newton Steel Co.	Newton Falls, Ohio	W
139	2000	235	2200	60	Tin Mill	Geared	1920	Nat. Enameling & Stamping Co.	St. Louis, Mo.	W
140	2000	234	2200	60	Sheet Mill	Geared	1921	Newton Steel Co.	Newton Falls, Ohio	W
141	2000	234	2200	60	Sheet Mill	Geared	1923	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
142	2000	240	2200	60	Sheet Mill	Geared	1919	Republic Iron & Steel Co.	Niles, Ohio	GE
143	2000	240	2200	60	Hot Sheet Mill	Geared	1929	Newton Steel Co.	Monroe, Mich.	GE
144	2000	240	2200	60	Hot Sheet Mill	Geared	1929	Newton Steel Co.	Monroe, Mich.	GE
145	2000	250	6600	25	Sheet Mill	Geared	1920	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
146	2000	250	6600	25	Sheet Mill	Geared	1920	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
147	2000	300	2200	60	Sheet Mill	Geared	1926	American Sheet & Tin Plate Co.	Scottdale, Pa.	GE
148	2000	295	6600	25	Sheet Mill	Geared	1929	Bethlehem Steel Co.	Sparrows Pt., Md.	W
149	2000	600	6600	60	Sheet Mill	Geared	1924	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	GE
150	2500	160–320	600	d.c.	Continuous Sheet Mill	Geared	1926	American Sheet & Tin Plate Co.	Gary, Ind.	W
151	2500	160–320	600	d.c.	Continuous Sheet Mill	Geared	1926	American Sheet & Tin Plate Co.	Gary, Ind.	W
152	2500	160–320	600	d.c.	Continuous Sheet Mill	Geared	1926	American Sheet & Tin Plate Co.	Gary, Ind.	W
153	2500	160–320	600	d.c.	Continuous Sheet Mill	Geared	1926	American Sheet & Tin Plate Co.	Gary, Ind.	W
154	2500	160–320	600	d.c.	Continuous Sheet Mill	Geared	1926	American Sheet & Tin Plate Co.	Gary, Ind.	W
155	2500	160–320	600	d.c.	Continuous Sheet Mill	Geared	1926	American Sheet & Tin Plate Co.	Gary, Ind.	W
156	4000	360	6600	60	Sheet Mill	Geared	1929	American Rolling Mill Co.	Ashland, Ky.	GE

ROD MILL DRIVES

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1	300	300–650	250	d.c.	10″ Rod Mill	Direct	1927	Washburn Wire Co.	Phillipsdale, R. I.	W
2	300	300–650	250	d.c.	10″ Rod Mill	Direct	1927	Washburn Wire Co.	Phillipsdale, R. I.	W
3	300	375	2200	25	10″ Rod Mill	Direct	1926	U. S. Aluminum Co.	Massena, N. Y.	GE
4	300	375	2200	25	10″ Rod Mill	Direct	1926	U. S. Aluminum Co.	Massena, N. Y.	GE
5	300	575	2200	60	Rod Mill	Geared	1923	Standard Underground Cable Co.	Perth Amboy, N. J.	W
6	300	720	2200	60	Wire Rod Mill.	Geared	1917	Rome Wire Co.	Rome, N. Y.	AC
7	350	250	2200	25	10″ Rod Mill	Direct	1911	Dillworth Porter Co.	Pittsburgh, Pa.	GE
8	360	300–425	230	d.c.	8″ Rod Mill	Direct	1915	United Alloy Steel Corporation	Canton, Ohio	W
9	360	300–600	230	d.c.	Rod Mill	Direct	1922	United Alloy Steel Corporation	Canton, Ohio	W
10	360	350–500	230	d.c.	7″ Rod Mill	Direct	1915	United Alloy Steel Corporation	Canton, Ohio	W
11	450	400–650	230	d.c.	Rod Mill	Direct	1913	American Steel & Wire Co.	Worcester, Mass.	W
12	500–340	588–400	2200	60	Rod Mill	Geared	1928	Keystone Steel & Wire	Peoria, Ill.	W
13	500	350–700	600	d.c.	Wire Rod Mill	Geared	1928	John A. Roebling's Sons	Trenton, N. J.	GE
14	600	600	2200	60	10″ Rod Mill	Geared	1927	Dilworth Porter Co.	Pittsburgh, Pa.	GE
15	600	400	2300	60	10″ Rod Mill	Direct	1927	Copperweld Steel Co.	Glassport, Pa.	GE
16	600	440	2200	50	10″ Rod Mill	Direct	1917	Wickwire Spencer Steel Corp.	Palmer, Mass.	W
17	600–400	514–300	2200	50	Rod Mill	Direct	1912	Oliver Iron & Steel Co.	Pittsburgh, Pa.	GE
18	600	514	2300	60	8″ Rod Mill	Direct	1927	Copperweld Steel Co.	Glassport, Pa.	GE
19	600	705	2200	60	10″ Rod Mill	Geared	1927	Washburn Wire Co.	Phillipsdale, R. I.	AC
20	700	1200	6600	50	Wire Rod Mill		1925	Weirton Steel Co.	Weirton, W. Va.	AC
21	800	140–510	600	d.c.	10″ Rod Mill	Direct	1927	American Steel & Wire Co.	Worcester, Mass.	W
22	800	140–510	600	d.c.	10″ Rod Mill	Direct	1927	American Steel & Wire Co.	Worcester, Mass.	W
23	800	240–500	600	d.c.	Rod Mill	Direct	1928	Sheffield Steel Corporation	Kansas City, Mo.	W
24	800	257	2200	60	12″ Rod Mill	Belt	1915	Crucible Steel Co. of America	Harrison, N. J.	GE
25	800	469–750	600	d.c.	Wire Rod Mill	Geared	1928	John A. Roebling's Sons	Trenton, N. J.	GE
26	800	469–750	600	d.c.	Wire Rod Mill	Geared	1928	John A. Roebling's Sons	Trenton, N. J.	GE
27	800	535–750	600	d.c.	10″ Wire Rod Mill	Geared	1926	American Steel & Wire Co.	Worcester, Mass.	W
28	800	535–750	600	d.c.	10″ Wire Rod Mill	Geared	1926	American Steel & Wire Co.	Worcester, Mass.	W
29	800–363	706–320	600	d.c.	10″ Rod Mill	Geared	1922	Wheeling Steel Corporation	Portsmouth, Ohio	GE
30	800–363	706–320	600	d.c.	10″ Rod Mill	Geared	1922	Wheeling Steel Corporation	Portsmouth, Ohio	GE
31	800–363	706–320	600	d.c.	10″ Rod Mill	Geared	1922	Wheeling Steel Corporation	Portsmouth, Ohio	GE
32	850	250–500	250	d.c.	10″ Rod Mill	Direct	1927	Washburn Wire Co.	Phillipsdale, R. I.	W
33	975–325	650–250	600	d.c.	Rod (Roughing) Mill	Geared	1922	Atlantic Steel Co.	Altanta, Ga.	W
34	975–510	865–450	600	d.c.	Rod (Finishing) Mill	Direct & Belted	1922	Atlantic Steel Co.	Atlanta, Ga.	W
35	1000	720	6600	60	Rod Mill	Geared	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
36	1000	720	6600	50	Rod Mill	Geared	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
37	1180–955–705	560–450–336	2200	60	Rod Mill	Belt	1916	Keystone Steel & Wire Co.	Peoria, Ill.	GE
38	1200	240–500	600	d.c.	10″ Rod Mill	Direct	1929	Sheffield Steel Co.	Kansas City, Mo.	W
39	1200	360	2200	60	Morgan Wr. Rod Mill	Geared	1918	Interstate Iron & Steel Co.	Chicago, Ill.	AC
40	1200	520–575	230	d.c.	Rod Mill	Direct	1928	Gulf States Steel Co.	Alabama City, Ala.	W
41	1250	175–400	230	d.c.	Rod Mill	Direct	1915	United Alloy Steel Corporation	Canton, Ohio	W
42	1250–1000–650	650–500–325	2200	25	Rod Mill	Belt	1916	Wickwire Spencer Steel Co.	Buffalo, N. Y.	GE
43	1300	257	6600	60	Rod Mill	Direct	1928	Gulf States Steel Co.	Alabama City, Ala.	W
44	1300	500	6400	25	Rod (Finishing) Mill	Rope	1910	American Steel & Wire Co.	Birmingham, Ala.	W
45	1500	137–275	600	d.c.	Rod Mill	Direct	1928	Sheffield Steel Corporation	Kansas City, Mo.	W
46	1500	200–600	600	d.c.	Rod Mill	Geared	1928	Sheffield Steel Corporation	Kansas City, Mo.	W
47	1500	150	6600	25	Wire Rod Mill	Coupled	1914	Illinois Steel Co.	Joliet, Ill.	AC
48	1500	234	2200	60	10″ Rod Mill	Geared	1921	Columbia Steel Co.	Pittsburgh, Cal.	W
49	1500	270	2200	60	Lamberton Rod Mill	Geared	1915	United Alloy Steel Corporation	Canton, Ohio	W
50	1500	450	2200	60	9″ Rod Mill	Direct	1926	Washburn Wire Co.	Philipsdale, R. I.	W
51	1500	450–550	600	d.c.	Rod Mill	Direct	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
52	1500	470–510	230	d.c.	Rod Mill	Direct	1923	John A. Roebling Sons	New York, N. Y.	W
53	1600	210–420	525	d.c.	Rod Mill	Geared	1913	Steel Company of Canada	Hamilton, Ont.	W
54	1600	210–420	525	d.c.	Rod Mill	Geared	1913	Steel Company of Canada	Hamilton, Ont.	W
55	1600	500	6600	25	Rod (Finishing) Mill	Rope	1910	American Steel & Wire Co.	Birmingham, Ala.	W
56	1750	180	6600	60	Rod Mill	Direct	1928	Gulf States Steel Co.	Alabama City, Ala.	W
57	1750	514	6600	60	Rod Mill	Geared	1928	Gulf States Steel Co.	Alabama City, Ala.	W
58	1800	514	2200	60	Rod Mill	Geared	1923	Columbia Steel Co.	Pittsburgh, Cal.	GE
59	1850	575–221	600	d.c.	Rod Mill	Direct & Belted	1922	Atlantic Steel Co.	Atlanta, Ga.	W
60	2000	230–460	600	d.c.	10″ Rod Mill	Geared	1927	American Steel & Wire Co.	Worcester, Mass.	W
61	2100	720	6600	50	Rod Mill	Geared	1928	Gulf States Steel Co.	Alabama City, Ala.	W
62	2360–1880–1440	410–327–250	2200	60	Rod Mill	Geared	1916	Keystone Steel & Wire Co.	Peoria, Ill.	GE
63	2400	500	6600	25	Wire Rod Mill	Geared	1916	Illinois Steel Co.	Gary, Ind.	AC
64	2470–1725–1235	430–300–215	2200	25	Rod Mill	Geared	1916	Wickwire Spencer Steel Co.	Buffalo, N. Y.	GE
65	2500	180–450	600	d.c.	Wire Rod Mill	Geared	1928	John A. Roebling Sons	Trenton, N. J.	GE
66	2500	296	2200	60	18″ Continuous Rod Mill	Geared	1928	Sheffield Steel Corporation	Kansas City, Mo.	AC
67	2600	81 5	6600	25	Rod (Roughing) Mill	Geared	1910	American Steel & Wire Co.	Birmingham, Ala.	W
68	2600	368	6400	25	Rod Mill	Geared	1916	American Steel & Wire Co.	Cleveland, Ohio	W
69	2750	450	6600	50	Rod Mill	Geared	1928	Gulf States Steel Co.	Alabama City, Ala.	W
70	2870–1435	400–200	600	d.c.	10″ Rod Mill	Geared	1922	Wheeling Steel Corporation	Portsmouth, Ohio	GE
71	3000	150	6600	25	Wire Rod Mill	Coupled	1920	Minnesota Steel Co.	Steelton, Minn.	AC
72	3000	180–370	600	d.c.	10″ Wire Rod Mill	Geared	1926	American Steel & Wire Co.	Worcester, Mass.	W
73	3000	450	6600	60	Rod Mills	Geared	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
74	3000	450	6600	50	Rod Mills	Geared	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
75	4000	375	6600	25	10″ Cont. Wire Rod Mill	Geared	1925	Bethlehem Steel Co.	Sparrows Point, Md.	GE

PIERCING MILL DRIVES

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1	300	300	2200	60	Piercing Mill	Coupled	1917	Pittsburgh Steel Products Co.	Monessen, Pa.	CW
2	300	300	2200	60	Piercing Mill	Coupled	1918	Pittsburgh Steel Products Co.	Allenport, Pa.	CW
3	300	720	4150	60	Piercing Mill	Geared	1927	Public Service Prod. Co.	Plainfield, N. J.	GE
4	400	600	440	60	Billet Piercing Machine	Geared	1915	Chase Metal Works	Waterbury, Conn.	GE
5	400	600	400	60	Piercing Mill	Geared	1915	Chase Metal Works	Waterbury, Conn.	GE
6	450	720	2200	50	Piercing Mill	Geared	1924	Standard Seamless Tube Co.	Economy, Pa.	GE
7	500	360	2200	60	Billet Piercing Mill	Geared	1922	Weldless Tube Co.	Wooster, Ohio	GE
8	500	500	2200	25	Continuous Tube Mill	Coupled	1915	Pittsburgh Steel Products Co.	Monessen, Pa.	CW
9	500	882	2200	50	Seamless Tube	Geared	1929	Babcock & Wilcox Co.	Beaver Falls, Pa.	W
10	600	485	550	25	Piercing Mill	Geared	1915	Baltimore Tube Co.	Baltimore, Md.	W
11	650	225–400	600	d.c.	Piercing Mill	Geared	1925	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
12	650	225–400	600	d.c.	Piercing Mill	Geared	1925	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
13	650	225–400	600	d.c.	Piercing Mill	Geared	1925	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
14	700	150	2200	60	Piercing Mill	Rope	1916	Ohio Seamless Tube Co.	Shelby, Ohio	GE
15	750–750	235–325	230	d.c.	Piercing Mill	Geared	1914	Pittsburgh Seamless Tube Co.	Beaver Falls, Pa.	GE
16	750	353	2200	60	Piercing Mill	Direct	1915	National Tube Co.	Elwood City, Pa.	W
17	750	353	2200	60	Piercing Mill	Direct	1915	National Tube Co.	Elwood City, Pa.	W
18	750	353	2200	60	Piercing Mill	Direct	1915	National Tube Co.	Elwood City, Pa.	W
19	800	200–300	500	d.c.	Piercing Mill	Rope	1912	Pittsburgh Steel Products Co.	Monessen, Pa.	W

PIERCING MILL DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
20	800	200–300	500	d.c.	Piercing Mill	Direct	1913	Pittsburgh Steel Products Co.	Monessen, Pa.	W
21	800	250	2200	60	Piercing Mill	Geared	1915	Timken Roller Bearing Co.	Canton, Ohio	W
22	1000	375	6600	25	Piercing Mill	Geared	1925	National Tube Co.	Lorain, Ohio	AC
23	1000	450	2200	60	Piercing Mill	Geared	1918	Winchester Rep. Arms Co.	New Haven, Conn.	AC
24	1200	150–300	230	d.c.	Piercing Mill	Geared	1929	Timken Roller Bearing Co.	Canton, Ohio	GE
25	1200	200	2200	60	Piercing Mill	Rope	1919	Ohio Seamless Tube Co.	Shelby, Ohio	GE
26	1500	200–500	600	d.c.	Seamless Tube Mill	Direct	1928	National Tube Co.	Gary, Ind.	AC
27	1500	200–500	600	d.c.	Seamless Tube Mill	Direct	1928	National Tube Co.	Gary, Ind.	AC
28	1600	600	2200	60	Piercing Mill	Geared	1921	Standard Seamless Tube Co.	Pittsburgh, Pa.	GE
29	2000	250	6600	25	Tube and Piercing	Geared	1928	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
30	2000	250–465	240	l.c.	Piercing Mill	Geared	1929	Timken Roller Bearing Co.	Canton, Ohio	GE
31	2500	247	6600	25	Piercing Mill	Geared	1923	Gary Tube Company	Gary, Ind.	W
32	2500	247	6600	25	Seamless Tube Mill	Geared	1925	Gary Tube Company	Gary, Ind.	W
33	2500	257	2200	60	Piercing Mill	Geared	1925	Globe Steel Tube Co.	Milwaukee, Wis.	AC
34	3000	40–100	600	d.c.	Piercing Mill	Direct	1925	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
35	3000	125–200	600	d.c.	Piercing Mill	Direct	1925	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
36	*3000	150	6600	60	Piercing Mill	Direct	1929	Pittsburgh Steel Co.	Monessen, Pa.	GE
37	3000	250	6600	25	Piercing Mill	Geared	1927	National Tube Co.	Lorain, Ohio	AC
38	3000	250	6600	25	Piercing Mill	Geared	1927	National Tube Co.	Lorain, Ohio	AC
39	3000	250	6600	25	Piercing Mill	Geared	1927	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
40	3000	250	6600	25	Piercing Mill	Geared	1927	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
41	3500	600	2200	60	Piercing Mill	Geared	1925	Standard Seamless Tube Co.	Economy, Pa.	GE
42	4000	250–465	240	l.c.	Piercing Mill	Geared	1928	Timken Roller Bearing Co.	Canton, O.	GE
43	5000	240	2200	60	51″ Piercing Mill	Direct	1927	Standard Seamless Tube Co.	Economy, Pa.	GE

TUBE ROLLING MILL DRIVES

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1	300	175–300	230	d.c.	Tube Mill	Direct	1927	Babcock & Wilcox	Beaver Falls, Pa.	W
2	300	175–300	230	d.c.	Tube Mill	Direct	1927	Babcock & Wilcocx	Beaver Falls, Pa.	W
3	300	300	230	d.c.	Steel Mill	Geared	1925	National Tube Co.	Lorain, Ohio	AC
4	300	300	230	d.c.	Steel Mill	Geared	1925	National Tube Co.	Lorain, Ohio	AC
5	300	300	230	d.c.	Steel Mill	Geared	1925	National Tube Co.	Lorain, Ohio	AC
6	300	345–500	500	d.c.	Tube Rolling Mill	Geared	1912	Pittsburgh Steel Products Co.	Monessen, Pa.	W
7	300	350	2200	60	Seamless Tube Co.	Geared	1915	Timken Roller Bearing Co.	Canton, Ohio	W
8	300	350	2200	60	Tube Rolling Mill	Geared	1919	Timken Roller Bearing Co.	Canton, Ohio	W
9	300	350–450	230	d.c.	Lap Welding Mill	Coupled	1923	Gary Tube Co.	Gary, Ind.	AC
10	300	435	230	d.c.	12″ Pipe Mill	Coupled	1910	A. M. Byers Company	Pittsburgh, Pa.	CW
11	300	435	230	d.c.	12″ Pipe Mill	Coupled	1910	A. M. Byers Company	Pittsburgh, Pa.	CW
12	300	450	220	60	Lap Welding Rolls	Geared	1923	Spang Chalfant Co.	Etna, Pa.	GE
13	300	450	2200	60	Cross Rolls in Tube Mill	Geared	1924	Standard Seamless Tube Co.	Economy, Pa.	GE
14	300	450	2200	60	Cross Rolls in Tube Mill	Geared	1924	Standard Tube Co. Seamless	Economy, Pa.	GE
15	300	500	220	25	Tube Mill	Geared	1915	Republic Iron & Steel Co.	Youngstown, Ohio	GE
16	300	500	550	25	Tube Rolling Mill	Geared	1917	Baltimore Tube Co.	Baltimore, Md.	W
17	300	500	550	25	Tube Rolling Mill	Geared	1917	Baltimore Tube Co.	Baltimore, Md.	W
18	300	500	230	l.c.	Pipe Mill—Wld. Rolls	Geared	1925	Central Tube Co.	Economy, Pa.	GE
19	300	514	220	60	Tube Mill	Geared	1914	Detroit Seamless Tube Co.	Detroit, Mich.	GE
20	300	514	440	60	Tube Mill	Geared	1914	Detroit Seamless Tobe Co.	Detroit, Mich.	GE
21	300	514	220	60	Tube Mill	Geared	1918	Detroit Seamless Tube Co.	Detroit, Mich.	AC
22	300	600	2200	60	Tube Mill	Geared	1922	Weldless Tube Co.	Wooster, Ohio	GE
23	300	600	2200	60	Tube Mill	Geared	1922	Weldless Tube Co.	Wooster, Ohio	GE
24	340	85	230	d.c.	Welding Rolls	Coupled	1906	National Tube Company	McKeesport, Pa.	CW
25	350	275–550	230	l.c.	Tube Reeling Mill	Geared	1928	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
26	350	275–550	230	l.c.	Tube Reeling Mill	Geared	1928	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
27	350	350	2200	60	Seamless Tube Mill	Geared	1927	Timken Roller Bearing Co.	Canton, Ohio	W
28	350–350	360–450	230	l.c.	Welding Rolls	Direct	1920	National Tube Co.	Lorain, Ohio	GE
29	350–350	360–450	230	d.c.	Welding Rolls	Direct	1920	National Tube Co.	Lorain, Ohio	GE
30	350	435	2200	60	Pipe Welding Roll Mill	Geared	1919	Wheeling Steel Corporation	Steubenville, Ohio	W
31	350	450	2200	60	Tube Rolling Mill	Geared	1925	Pittsburgh Steel Co.	Allenport, Pa.	EM
32	350	450	2300	60	Tube Mill	Direct	1929	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
33	350	450	2300	60	Tube Mill	Direct	1929	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
34	350	450	2300	60	Tube Mill	Direct	1929	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
35	350	492	6600	25	Tube Reeling Mill	Geared	1929	National Tube Co.	McKeesport, Pa.	W
36	350	492	6600	25	Tube Mill	Geared	1929	National Tube Co.	McKeesport, Pa.	W
37	350	492	6600	25	Tube Mill	Geared	1929	National Tube Co.	McKeesport, Pa.	W
38	350	514	2200	60	Tube Mill	Geared	1928	Globe Steel Tube Co.	Milwaukee, Wis.	AC
39	350	514	2200	60	Tube Mill	Geared	1928	Globe Steel Tube Co.	Milwaukee, Wis.	AC
40	350	720	2200	60	Tube Mill	Geared	1928	Globe Steel Tube Co.	Milwaukee, Wis.	AC
41	350	720	2200	60	Tube Mill	Geared	1928	Globe Steel Tube Co.	Milwaukee, Wis.	AC
42	400	75	230	l.c.	Welding Rolls	Coupled	1906	National Tube Company	McKeesport, Pa.	CW
43	400	300	550	25	Tube Mill	Geared	1927	Bethlehem Steel Co.	Sparrows Pt. Md.	GE
44	400	300	550	25	Tube Mill	Geared	1927	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
45	400	350	230	d.c.	Tube Reeling Drive	Geared	1927	National Tube Co.	Lorain, Ohio	AC
46	400	350	230	d.c.	Tube Reeling Drive	Geared	1927	National Tube Co.	Lorain, Ohio	AC
47	400	375	220	25	Tube Mill—Chill Rolls	Geared	1909	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
48	400	375	220	25	20″ Tube Mill—Wld.Rolls	Geared	1909	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
49	400	375	220	25	Tube Mill—Wld. Rolls	Geared	1917	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
50	400	375	220	25	Tube Mill—Wld. Rolls	Geared	1922	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
51	400	375	220	25	Tube Mill—Wld. Rolls	Geared	1922	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
52	400	400	440	60	Lap Welding Rolls	Geared	1923	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
53	400	400	440	60	Lap Welding Rolls	Geared	1923	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
54	400	435	400	60	Pipe Mill	Geared	1918	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
55	400	500	6600	25	Tube Sizing Mill	Geared	1927	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
56	400	500	6600	25	Reducing Tube Mill	Geared	1928	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
57	400	500	6600	25	Reducing Tube Mill	Geared	1928	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
58	400	514	2300	60	Tube Mill	Direct	1929	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
59	400	600	2300	60	Tube Welding Mill	Geared	1927	South Chester Tube Co.	Chester, Pa.	GE
60	400	600	440	60	Tube Mill	Geared	1920	Globe Seamless Tube Co.	Milwaukee, Wis.	AC
61	450	300	230	l.c.	10″ Tube Mill	Coupled	1911	Pittsburgh Seamless Tube Co.	Beaver Falls, Pa.	CW
62	450	720	2200	60	Seamless Tube Co.	Geared	1927	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
63	500	234	2200	60	Tube Mill	Coupled	1922	Pittsburgh Steel Products Co.	Allenport, Pa.	CW
64	500	234	2200	60	Tube Mill	Coupled	1922	Pittsburgh Steel Products Co.	Allenport, Pa.	CW
65	500	250	2200	60	Tube Mill	Coupled	1918	Pittsburgh Steel Products Co.	Allenport, Pa.	CW
66	500	250	2200	60	Tube Mill	Coupled	1918	Pittsburgh Steel Products Co.	Allenport, Pa.	CW
67	500	300–450	230	d.c.	Lap Welding Mill	Coupled	1923	Gary Tube Co.	Gary, Ind.	AC
68	500	360	2200	60	Tube Finishing	Geared	1929	Timken Roller Bearing Co.	Canton, Ohio	GE
69	500	360	2200	60	Tube Finishing Mill	Geared	1929	Timken Roller Bearing Co.	Canton, Ohio	GE
70	500	400–800	230	d.c.	Tube Reeling Mill	Geared	1927	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
71	500	400–800	230	d.c.	Tube Reeling Mill	Geared	1927	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
72	500	450	2200	60	Tube Mill	Geared	1916	Ohio Seamless Tube Co.	Shelby, Ohio	GE
73	500	450	2200	60	Tube Mill	Geared	1919	Ohio Seamless Tube Co.	Shelby, Ohio	GE
74	500	500	550	25	Tube Rolling Mill	Geared	1917	Baltimore Tube Co.	Baltimore, Md.	W
75	500	600	2200	60	Reducing Pipe Mill	Geared	1925	Ohio Seamless Tube Co.	Shelby, Ohio	GE

TUBE ROLLING MILL DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
76	500	600	4600	60	Reducing Mill	Geared	1926	Detroit Seamless Steel Tube Co.	Detroit, Mich.	AC
77	500	600	2200	60	Tube Finishing Mill	Geared	1929	Timken Roller Bearing Co.	Canton, Ohio	GE
78	500	600	2200	60	Tube Finishing Mill	Geared	1929	Timken Roller Bearing Co.	Canton, Ohio	GE
79	500	600	2200	60	Tube Finishing Mill	Geared	1929	Timken Roller Bearing Co.	Canton, Ohio	GE
80	600	300	2200	60	Tube Mill	Coupled	1917	Pittsburgh Steel Products Co.	Monessen, Pa.	CW
81	600	300	2200	60	Tube Mill	Coupled	1918	Pittsburgh Steel Products Co.	Allenport, Pa.	CW
82	600	360	2200	60	Tube Mill	Geared	1914	Standard Seamless Tube Co.	Economy, Pa.	GE
83	*600	375	6600	25	Tube Mill	Geared	1929	National Tube Co.	Gary, Ind.	AC
84	*600	450	2200	60	Reeling Mill	Geared	1929	Spang-Chalfant Co.	Ambridge, Pa.	GE
85	*600	450	2200	60	Reeling Mill	Geared	1929	Spang-Chalfant Co.	Ambridge, Pa.	GE
86	700	300–400	230	d.c.	Lap Welding Mill	Coupled	1923	Gary Tube Co.	Gary, Ind.	AC
87	750	295	6600	25	Seamless Mill	Geared	1923	Gary Tube Co.	Gary, Ind.	W
88	750	353	2200	60	Tube Rolling Mill	Direct	1915	National Tube Co.	Ellwood City, Pa.	W
89	750	353	2200	60	Tube Rolling Mill	Direct	1915	National Tube Co.	Ellwood City, Pa.	W
90	750	353	2200	60	Tube Rolling Mill	Direct	1915	National Tube Co.	Ellwood City, Pa.	W
91	800	107	6600	25	Tube Rolling Mill	Coupled	1925	National Tube Co.	Lorain, Ohio	AC
92	800	109	2200	60	2—21″ Rolls	Coupled	1924	Globe Steel Tube Co.	Milwaukee, Wis.	AC
93	800	225	2200	60	Roughing Mill Tube	Geared	1916	Standard Seamless Tube Co.	Economy, Pa.	GE
94	*1000	79	6600	25	Tube Mill	Direct	1929	National Tube Co.	McKeesport, Pa.	W
95	1000	240	220	60	Tube Mill	Geared	1919	Globe Seamless Tube Co.	Milwaukee, Wis.	AC
96	1000	240	2200	60	Tube Mill	Rope & Direct	1917	Pittsburgh Seamless Tube Co.	Beaver Falls, Pa.	CW
97	1000	300–400	230	d.c.	Lap Welding Mill	Coupled Rope	1923	Gary Tube Co.	Gary, Ind.	AC
98	1000	375	6600	25	Tube Mill	Geared	1928	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
99	1200	112.5	2200	60	Tube Mill	Geared	1928	Globe Steel Tube Co.	Milwaukee, Wis.	AC
100	1200	257	4600	60	Tube Mill	Direct & Coupled	1918	Detroit Seamless Tube Co.	Detroit, Mich.	GE
101	1200	294	2200	60	Tube Rolling Mill	Geared	1915	National Tube Co.	Ellwood City, Pa.	W
102	1500	62–½	6600	25	Tube Rolling Mill	Coupled	1926	Gary Tube Co.	Gary, Indiana	AC
103	1500	62½	6600	25	Tube Mill	Direct	1927	National Tube Co.	Lorain, Ohio	AC
104	1500	375	6600	25	Tube Rolling Mill	Geared	1927	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
105	1600	600	2200	60	Tube Rolling Mill	Geared	1925	Standard Seamless Tube Co.	Economy, Pa.	GE
106	1800	150	6600	60	Tube Mill	Direct	1928	Pittsburgh Steel Co.	Allenport, Pa.	W
107	1500–1800	200–240–500	500–600	d.c.	Tube Mill	Direct	1929	National Tube Co.	Lorain, Ohio	AC
108	1500–1800	200–240–500	500–600	d.c.	Tube Mill	Direct	1929	National Tube Co.	Lorain, Ohio	AC
109	1800	250	2200	60	Tube Rolling Mill	Direct	1915	National Tube Co.	Ellwood City, Pa.	W
110	1800–1350	300	2200	60	Tube Rolling Mill	Geared	1927	National Tube Co.	Elwood City, Pa.	GE
111	*2000	62.5	6600	25	Tube Mill	Direct	1929	National Tube Co.	McKeesport, Pa.	W
112	*2000	62.5	6600	25	Tube Mill	Direct	1929	National Tube Co.	Lorain, Ohio	AC
113	*2000	68	6600	60	Tube Mill	Direct	1929	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
114	*2000	250	6600	25	Tube Mill	Geared	1929	National Tube Co.	McKeesport, Pa.	W
115	*2000	250	6600	25	Tube Mill	Geared	1929	National Tube Co.	McKeesport, Pa.	W
116	3500	247	6600	25	Tube Mill		1929	National Tube Co.	Lorain, Ohio	AC
117	*3500	250	6600	25	Tube Mill	Geared	1929	National Tube Co.	McKeesport, Pa.	W
118	*3500	250	6600	25	Tube Mill	Geared	1929	National Tube Co.	McKeesport, Pa.	W

STRIP AND HOOP MILL DRIVES

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1	300	250–750	250	d.c.	12″ Hoop Mill	Geared	1928	Carnegie Steel Co.	Youngstown, O.	W
2	300–225–165	335–225–165	6600	25	12″ Hot Strip Mill	Geared	1920	Illinois Steel Co.	Gary, Ind.	GE
3	300	360	2200	60	10″ Strip Mill	Coupled	1923	Pittsburgh Steel Company	Glassport, Pa.	CW
4	300	600	2200	60	10″ Hot Strip Mill	Direct	1919	Superior Steel Co.	Carnegie, Pa.	GE
5	300	600–1200	600	d.c.	14″ Hot Strip Mill	Geared	1929	Superior Steel Co.	Carnegie, Pa.	W
6	300	600–1200	600	d.c.	14″ Hot Strip Mill	Geared	1929	Superior Steel Co.	Carnegie, Pa.	W
7	350	242	2200	25	Cold Strip Mill	Geared	1922	Otis Steel Co.	Cleveland, Ohio	W
8	350	345	440	60	21″ Plate (Cold Roll.) Mill	Geared	1910	Oliver Iron & Steel Co.	Wilson Station, Pa.	W
9	350	400–700	600	d.c.	28″ Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
10	350	450–600	230	d.c.	Band Mill	Direct	1926	Sharon Steel Hoop Co.	Sharon, Pa.	CW
11	350	490	6400	25	24″ Flat (Edging) Mill	Geared	1916	American Steel & Wire Co.	Cleveland, Ohio	W
12	400–400	275–500	550	d.c.	12″ Hot Strip Mill	Direct	1916	American Steel & Wire Co.	Cleveland, Ohio	GE
13	400	360	2200	60	8″ Strip Mill	Coupled	1923	Pittsburgh Steel Company	Glassport, Pa.	CW
14	400	420–1050	250	d.c.	12″ Hoop Mill	Geared	1928	Carnegie Steel Co.	Youngstown, O.	W
15	450	440–350	2200	60	Cont. Hoop (Fin.) Mill	Direct	1920	Connors Steel Co.	Birmingham, Ala.	W
16	450	450–600	230	d.c.	12″ Cold Strip (2 Tandem Stds. Roughing) Mill	Geared	1915	Superior Steel Co..	Carnegie, Pa.	W
17	450	450–600	230	d.c.	12″ Cold Strip (2 Tandem Stds. Finishing) Mill	Geared	1915	Superior Steel Co.	Carnegie, Pa.	W
18	450	700–595	2200	60	Cont. Hoop (Fin.) Mill	Direct	1920	Connors Steel Co.	Birmingham, Ala.	W
19	450	730	6600	25	Hoop Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	W
20	450	730	6600	25	Hoop Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	W
21	500	210–525	600	d.c.	16″ Strip Mill	Geared	1928	Weirton Steel Co.	Weirton, W. Va.	GE
22	500–500	250–325	230	d.c.	8″ Hoop Mill	Direct	1909	Atlantic Steel Co.	Atlanta, Ga.	GE
23	500	250–500	230	d.c.	9″ Hoop (Finishing) Mill	Direct	1914	Sharon Steel Hoop Co.	Sharon, Pa.	W
24	500	250–380	600	d.c.	10″ Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, O.	W
25	500	340–543	600	d.c.	10″ Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, O.	W
26	500–500	400–600	230	d.c.	Hoop Mill	Geared	1920	Atlantic Steel Co.	Atlanta, Ga.	GE
27	500	400–600	600	d.c.	8″ Strip Mill	Direct	1928	Superior Steel Corporation	Carnegie, Pa.	W
28	500	435–722	600	d.c.	10″ Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, O.	W
29	500	450	440	60	Hoop Mill	Geared	1912	Carnegie Steel Company	Pittsburgh, Pa.	CW
30	500	543–892	600	d.c.	10″ Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, O.	W
31	500	667–1000	600	d.c.	10″ Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, O.	W
32	550	320–206	2200	60	10″ Hoop Mill	Direct	1917	Atlantic Steel Co.	Atlanta, Ga.	W
33	600–600	150–250	575	d.c.	6″ Hot Strip Mill	Direct	1913	American Steel & Wire Co.	Cleveland, Ohio	GE
34	600	185–470	600	d.c.	10″ Strip Mill	Direct	1926	LacLede Steel Co.	Alton, Ill.	W
35	600–600	225–425	550	d.c.	12″ Hot Strip Mill	Direct	1916	American Steel & Wire Co.	Cleveland, Ohio	GE
36	600	270–635	600	d.c.	10″ Strip Mill	Direct	1926	LacLede Steel Co.	Alton, Ill.	W
37	600	390	440	60	Cold Strip Mill	Geared	1917	Stanley Works	New Haven, Conn.	W
38	600	400–900	250	d.c.	12″ Hoop Mill	Geared	1928	Carnegie Steel Co.	Youngstown, O.	W
39	600	400–900	250	d.c.	12″ Hoop Mill	Geared	1928	Carnegie Steel Co.	Youngstown, O.	W
40	600	400–900	250	d.c.	12″ Hoop Mill	Geared	1928	Carnegie Steel Co.	Youngstown, O.	W
41	600	400–1000	600	d.c.	10″ Hot Strip Mill	Geared	1929	Acme Steel Co.	Riverdale, Ill.	W
42	600	450–900	600	d.c.	10″ Hot Strip Mill	Geared	1929	Acme Steel Co.	Riverdale, Ill.	W
43	600	450–900	600	d.c.	10″ Hot Strip Mill	Geared	1929	Acme Steel Co.	Riverdale, Ill.	W
44	600	450–900	600	d.c.	10″ Hot Strip Mill	Geared	1929	Acme Steel Co.	Riverdale, Ill.	W
45	600	450–900	600	d.c.	10″ Hot Strip Mill	Geared	1929	Acme Steel Co.	Riverdale, Ill.	W
46	600–600	720–360	6600	60	Hot Strip Mill	Geared	1916	Weirton Steel Co.	Weirton, W. Va.	AC

STRIP AND HOOP MILL DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
47	*700	100	2300	60	Hot Strip Mill	Direct	1929	American Tube & Stamping Co.	Bridgeport, Conn.	W
48	700	264-595	600	d.c.	10" Hot Strip Mill	Direct	1929	Acme Steel Co.	Riverdale, Ill.	W
49	*700	300	2300	60	Hot Strip Mill	Direct	1929	American Tube & Stamping Co.	Bridgeport, Conn.	W
50	700	490	6600	25	Hoop Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	W
51	700	490	6600	25	Hoop Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	W
52	700	875	2200	60	Cont. Hoop (Rough.) Mill	Geared	1920	Connors Steel Co.	Birmingham, Ala.	W
53	700	875	2200	60	Cont. Hoop (Inter.) Mill	Geared	1920	Connors Steel Co.	Birmingham, Ala.	W
54	720	395-825	600	d.c.	10" Strip Mill	Direct	1926	LacLede Steel Co.	Alton, Ill.	W
55	720	480-1000	600	d.c	10" Strip Mill	Direct	1926	LacLede Steel Co.	Alton, Ill.	W
56	750	200-600	600	d.c.	10" Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, O.	W
57	750	225-500	250	d.c.	12" Hoop Mill	Direct	1928	Carnegie Steel Co.	Youngstown, O.	W
58	750	225-500	250	d.c.	12" Hoop Mill	Direct	1928	Carnegie Steel Co.	Youngstown, O.	W
59	750	257	2200	60	10" Strip Mill	Coupled	1923	Pittsburgh Steel Company	Glassport, Pa.	CW
60	750-625-460	360-300-220	6600	25	12" Hot Strip Mill	Direct	1920	Illinois Steel Co.	Gary, Ind.	GE
61	750-750	360-860	600	d.c.	14" Cont. Mill	Geared	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
62	750-600-400	473-375-278	6600	25	12" Hot Strip Mill	Direct	1920	Illinois Steel Co.	Gary, Ind.	GE
63	770-700-630	540-490-440	6600	25	Hoop Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	W
64	800-800	200-400	600	d.c.	14" Hot Strip Mill	Direct	1920	Trumbull Steel Co.	Warren, Ohio	GE
65	800-800	214-167	6600	25	16" Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
66	800-800	231-462	600	d.c.	14" Hot Strip Mill	Direct	1920	Trumbull Steel Co.	Warren, Ohio	GE
67	800	250-500	230	d.c.	14" and 9" Hoop Mill	Direct	1914	Sharon Steel Hoop Co.	Sharon, Pa.	W
68	800	250-750	600	d.c.	14" Hot Strip Mill	Direct	1927	Trumbull Steel Co.	Warren, Ohio	GE
69	800-800	256-512	600	d.c.	14" Hot Strip Mill	Direct	1920	Trumbull Steel Co.	Warren, Ohio	GE
70	800	257	2200	60	Hot Strip Mill	Geared	1926	Standard Seamless Tube Co.	Economy, Pa.	GE
71	*800	257	2300	60	Hot Strip Mill	Direct	1929	American Tube & Stamping Co.	Bridgeport, Conn.	W
72	800	265-665	240	d.c.	12" Strip Mill	Geared	1929	West Leechburg Steel Co.	Leechburg, Pa.	W
73	800	265-665	240	d.c.	12" Strip Mill	Geared	1929	West Leechburg Steel Co.	Leechburg, Pa.	W
74	800	265-665	240	d.c.	12" Strip Mill	Direct	1929	West Leechburg Steel Co.	Leechburg, Pa.	W
75	800	265-665	240	d.c.	12" Strip Mill	Direct	1929	West Leechburg Steel Co.	Leechburg, Pa.	W
76	800	265-665	240	d.c.	12" Strip Mill	Geared	1929	West Leechburg Steel Co.	Leechburg, Pa.	W
77	800-800	275-550	600	d.c.	14" Hot Strip Mill	Direct	1920	Trumbull Steel Co.	Warren, Ohio	GE
78	800-800	315-210	575	d.c.	6" Hot Strip Mill	Direct	1907	American Steel & Wire Co.	Cleveland, Ohio	GE
79	800	350-600	230	d.c.	Band Mill	Direct	1926	Sharon Steel Hoop Co.	Sharon, Pa.	CW
80	800	350-600	230	d.c.	Band Mill	Direct	1926	Sharon Steel Hoop Co.	Sharon, Pa.	CW
81	800	382-908	600	d.c.	10" Hot Strip Mill	Direct	1929	Acme Steel Co.	Riverdale, Ill.	W
82	800	382-908	600	d.c.	10" Hot Strip Mill	Direct	1929	Acme Steel Co.	Riverdale, Ill.	W
83	800-800	390-260	575	d.c.	6" Hot Strip Mill	Direct	1907	American Steel & Wire Co.	Cleveland, Ohio	GE
84	800	425-875	250	d.c.	12" Hoop Mill	Direct	1928	Carnegie Steel Co.	Youngstown, O.	W
85	800	425-875	250	d.c.	12" Hoop Mill	Direct	1928	Carnegie Steel Co.	Youngstown, O.	W
86	800	450	2200	60	8" Strip Mill	Direct	1928	Superior Steel Corporation	Carnegie, Pa.	W
87	800	435	2200	60	No. 2 Hoop Mill	Geared	1925	Connors Steel Co.	Birmingham, Ala.	W
88	800	505	2200	60	9" Hot Strip Mill	Direct	1926	West Leechburg Steel Co.	West Leechburg, Pa.	W
89	800	585-292	6600	60	16" Hoop and Band Mill	Geared	1915	Weirton Steel Co.	Weirton, W. Va.	W
90	800-800-800	720-600-480	2200	60	12" Hot Strip Mill	Geared	1920	Canadian Electric Steel Co.	Montreal, Canada	GE
91	900	150-300	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corporation	Steubenville, O.	GE
92	900-710-620	325-257-182	2300	60	10" Hoop Mill	Geared	1918	Acme Steel Goods Co.	Riverdale, Ill.	GE
93	1000	50-100	600	d.c.	24" Flat (Rough.) Mill	Direct	1916	American Steel & Wire Co.	Cleveland, Ohio	W
94	1000	214-150	6400	25	24" Flat (Finishing) Mill	Direct	1916	American Steel & Wire Co.	Cleveland, Ohio	W
95	1000	200-400	600	d.c.	14" Hot Strip Mill	Direct	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
96	1000	250-500	250	d.c.	Strip Mill	Geared	1929	U. S. Aluminum Co.	Arnold, Pa.	W
97	1000	250-500	600	d.c.	14" Hot Strip Mill	Direct	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
98	1000	300-600	600	d.c.	14" Hot Strip Mill	Direct	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
99	1000	350-450	600	d.c.	28" Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
100	1000	350-700	600	d.c.	14" Hot Strip Mill	Direct	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
101	1000	277	2200	60	Strip Mill	Geared	1919	American Tube & Stamping Co.	Bridgeport, Conn.	GE
102	1000	435	2200	60	Hot Strip Mill	Geared	1924	American Tube & Stamping Co.	Bridgeport, Conn.	W
103	1000	435	2200	60	Hot Strip Mill	Geared	1924	American Tube & Stamping Co.	Bridgeport, Conn.	W
104	1000	705	2200	60	16" Strip Mill	Geared	1920	Central Steel Co.	Massillon, Ohio	W
105	1125-900-675	312-250-187	6600	25	12" Strip Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	GE
106	1200	125-275	600	d.c.	10" Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, O.	W
107	*1200	120	2300	60	Hot Strip Mill	Direct	1929	American Tube & Stamping Co.	Bridgeport, Conn.	W
108	1200	140-225	600	d.c.	20" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
109	1200	200-400	230	d.c.	14" Band Hoop Mill	Direct	1926	Sharon Steel Hoop Co.	Sharon, Pa.	W
110	1200	200-400	230	d.c.	14" Band Hoop Mill	Direct	1926	Sharon Steel Hoop Co.	Sharon, Pa.	W
111	1200	250-500	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corporation	Steubenville, O.	GE
112	1200	250-500	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corporation	Steubenville, O.	GE
113	1200-1200-1200	450-360-270	2300	60	9" Hot Strip Mill	Geared	1916	Trumbull Steel Co.	Warren, Ohio	GE
114	1200-1200-1200	450-360-270	2300	60	9" Hot Strip Mill	Geared	1916	Trumbull Steel Co.	Warren, Ohio	GE
115	1200-1200-1200	450-360-270	2300	60	9" Hot Strip Mill	Direct	1916	Trumbull Steel Co.	Warren, Ohio	GE
116	1200-1000-800	450-375-300	6600	25	8" Hoop Mill, No. 8	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
117	1200-1000-800	450-375-300	6600	25	8" Hoop Mill, No. 9	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
118	1200-1000-800	450-375-300	6600	25	18" Band Mill, No. 13	Geared	1919	Carnegie Steel Co.	Youngstown, Ohio	GE
119	1200	505-303	6600	60	16" Band Mill	Geared	1919	Weirton Stee Co.	Weirton, W. Va.	W
120	1200	590-450	2200	60	Duo and Bull Head Mill	Geared	1916	Central Steel Co.	Massillon, Ohio	W
121	1200	590	2200	60	22" Strip Mill	Geared	1918	Harrisburg Pipe & Pipe BendingCo	Harrisburg, Pa.	W
122	1250	103-253	600	d.c.	Strip Mill	Direct	1928	Sharon Steel Hoop Co.	Sharon, Pa.	GE
123	1250	137-326	600	d.c.	Strip Mill	Direct	1928	Sharon Steel Hoop Co.	Sharon, Pa.	GE
124	1250-1250	175-350	600	d.c.	14" Hot Strip Mill	Geared	1920	Trumbull Steel Co.	Warren, Ohio	GE
125	1250-1250	175-350	600	d.c.	14" Hot Strip Mill	Geared	1920	Trumbull Steel Co.	Warren, Ohio	GE
126	1250	175-413	600	d.c.	Strip Mill	Direct	1928	Sharon Steel Hoop Co.	Sharon, Pa.	GE
127	1250	200-500	600	d.c.	Strip Mill	Direct	1928	Sharon Steel Hoop Co.	Sharon, Pa.	GE
128	1250	250-580	600	d.c.	Strip Mill	Direct	1928	Sharon Steel Hoop Co.	Sharon, Pa.	GE
129	1250	312-625	600	d.c.	Strip Mill	Direct	1928	Sharon Steel Hoop Co.	Sharon, Pa.	GE
130	1400	450-550	500	d.c.	12" Spring Mill	Coupled	1926	Ford Motor Co., Fordson Plant	Detroit, Mich.	AC
131	1500	125-250	230	d.c.	14" Band Mill	Direct	1914	Sharon Steel Hoop Co.	Sharon, Pa.	W
132	1500	125-250	240	d.c.	Strip Mill	Geared	1922	West Leechburg Steel Co.	Leechburg, Pa.	W
133	1500	125-250	240	d.c.	Strip Mill	Geared	1922	West Leechburg Steel Co.	Leechburg, Pa.	W
134	1500	150	6600	60	Wide Strip Mill	Geared	1928	Wheeling Steel Corporation	Steubenville, O.	GE
135	1500	164	2200	60	Hot Strip Mill	Direct	1928	Danville Structural Steel Co.	Danville, Pa.	EM
136	1500	164	2200	60	Hot Strip Mill	Direct	1928	Danville Structural Steel Co.	Danville, Pa.	EM
137	*1500	180	2300	60	Hot Strip Mill	Direct	1929	American Tube & Stamping Co.	Bridgeport, Conn.	W
138	1500	198-100	600	d.c.	10" Strip Mill	Rope & Direct	1926	LacLede Steel Co.	Alton, Ill.	W
139	1500	200	6600	60	Strip Sheet Mill	Geared	1926	Weirton Steel Co.	Weirton, W. Va.	GE
140	1500	200-400	600	d.c.	20"-16" Hot Strip Mill	Geared	1925	Acme Steel Goods Co.	Riverdale, Ill.	W
141	1500	220-440	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corporation	Steubenville, O.	GE
142	1500	257	2200	25	10" Hot Strip Mill	Direct	1919	Superior Steel Co.	Carnegie, Pa.	GE
143	1500-1500	280-420	600	d.c.	20" Hot Strip Mill	Direct	1922	Otis Steel Co.	Cleveland, Ohio	GE
144	1500-1500	280-420	600	d.c.	20" Hot Strip Mill	Direct	1922	Otis Steel Co.	Cleveland, Ohio	GE
145	1500-1500	280-420	600	d.c.	20" Hot Strip Mill	Direct	1922	Otis Steel Co.	Cleveland, Ohio	GE
146	1500	325-450	600	d.c.	10" Strip Mill	Direct	1928	Superior Steel Corporation	Carnegie, Pa.	W
147	1500	360	2200	60	10" Hot Strip Mill	Direct	1919	Superior Steel Co.	Carnegie, Pa.	GE
148	1500	450	6600	60	Strip Sheet Mill	Geared	1926	Weirton Steel Co.	Weirton, W. Va.	GE
149	1500	450	6600	60	Strip Sheet Mill	Geared	1926	Weirton Steel Co.	Weirton, W. Va.	GE
150	1500-1500-1200	450-360-270	2300	60	16" Strip Mill	Geared	1916	Trumbull Steel Co.	Warren, Ohio	GE
151	1500-1200-900	468-375-281	6600	25	12" Strip Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	GE
152	1500	505	6600	60	16" Hoop and Band Mill	Geared	1915	Weirton Steel Co.	Weirton, W. Va.	W
153	1500	514	6600	60	Hot Strip Mill	Geared	1917	Weirton Steel Co.	Weirton, W. Va.	AC

STRIP AND HOOP MILL DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
154	1500-1500	514-237	6600	60	Hot Strip Mill	Geared	1917	Weirton Steel Co.	Weirton, W. Va.	AC
155	1500	514	6600	60	Hot Strip Mill	Geared	1924	Weirton Steel Co.	Weirton W. Va.	AC
156	1500-1500	514-237	6600	60	Hot Strip Mill	Geared	1917	Weirton Steel Co.	Weirton, W. Va.	AC
157	1500	705	2200	60	Strip Mill	Geared	1922	West Leechburg Steel Co.	Leechburg, Pa.	W
158	1500	705	2200	60	Strip Mill	Geared	1922	West Leechburg Steel Co.	Leechburg, Pa.	W
159	1500	705	2200	60	20"-16" Hot Strip Mill	Geared	1925	Acme Steel Goods Co.	Riverdale, Ill.	W
160	1600	150-300	600	d.c.	14" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
161	1600	200-300	600	d.c.	20" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
162	1600	440-500-540	6600	25	Hoop Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	W
163	1600	440-500-540	6600	25	Hoop Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	W
164	1600	490	6600	25	Hoop Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	W
165	1600	705	2200	60	9" Hot Strip Mill	Geared	1926	West Leechburg Steel Co.	West Leechburg, Pa.	W
166	1600	705	2200	60	12" Strip Mill	Geared	1929	West Leechburg Steel Co.	Leechburg, Pa.	W
167	1650-1205	235-187.5-	6600	25	20" Hot Strip Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
168	1700-1700	90-140	600	d.c.	14" Continuous Mill	Direct	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
169	1700-1700	90-205	600	d.c.	14" Continuous Mill	Direct	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
170	1750	100-200	500	d.c.	12" Spring Strip Mill	Coupled	1926	Ford Motor Co., Fordson Plant	Detroit, Mich.	AC
171	1800-1800	115-230	600	d.c.	20" Hot Strip Mill	Direct	1922	Otis Steel Co.	Cleveland, Ohio	GE
172	1800-1800	115-230	600	d.c.	20" Hot Strip Mill	Direct	1922	Otis Steel Co.	Cleveland, Ohio	GE
173	1800-1800	115-230	600	d.c.	20" Hot Strip Mill	Direct	1922	Otis Steel Co.	Cleveland, Ohio	GE
174	1800	125-250	600	d.c.	20"-16" Hot Strip Mill	Direct	1925	Acme Steel Goods Co.	Riverdale, Ill.	W
175	1800	125-250	600	d.c.	20"-16" Hot Strip Mill	Direct	1925	Acme Steel Goods Co.	Riverdale, Ill.	W
176	1800	165-350	240	d.c.	Strip Mill	Direct	1922	West Leechburg Steel Co.	Leechburg, Pa.	W
177	1800	165-350	240	d.c.	Strip Mill	Direct	1922	West Leechburg Steel Co.	Leechburg, Pa.	W
178	1800	185-370	600	d.c.	20"-16" Hot Strip Mill	Geared	1925	Acme Steel Goods Co.	Riverdale, Ill.	W
179	1800	185-370	600	d.c.	20"-16" Hot Strip Mill	Direct	1925	Acme Steel Goods Co.	Riverdale, Ill.	W
180	1800	185-370	600	d.c.	20"-16" Hot Strip Mill	Direct	1925	Acme Steel Goods Co.	Riverdale, Ill.	W
181	1800	214	2200	25	6" Hot Strip Mill	Rope	1907	American Steel & Wire Co.	Cleveland, Ohio	GE
182	1800-1500-1200	240-200-160	2300	60	10" Hoop Mill	Belt	1918	Acme Steel Goods Co.	Riverdale, Ill.	GE
183	1800-1500-1200	450-375-300	6600	25	10" Hoop Mill, No. 11	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
184	1800	500	6600	25	20" Hot Strip Mill	Geared	1922	Otis Steel Co	Cleveland, Ohio	GE
185	2000	175-400	600	d.c.	28" Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
186	2000	175-400	600	d.c.	28" Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
187	2000	175-400	600	d.c.	28" Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
188	2000	175-400	600	d.c.	28" Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
189	2000	180	2200	60	14" Strip Mill	Direct	1928	Superior Steel Corporation	Carnegie, Pa.	W
190	2000	200-400	600	d.c.	Hot Strip Mill	Geared	1926	Columbia Steel Co.	Butler, Pa.	GE
191	2000	200-400	600	d.c.	Hot Strip Mill	Geared	1926	Columbia Steel Co.	Butler, Pa.	GE
192	2000	200-400	600	d.c.	Hot Strip Mill	Geared	1926	Columbia Steel Co.	Butler, Pa.	GE
193	2000	200-400	600	d.c.	Hot Strip Mill	Geared	1926	Columbia Steel Co.	Butler, Pa.	GE
194	2000	200-400	600	d.c.	Strip Sheet Mill	Direct	1926	Weirton Steel Co.	Weirton, W. Va.	GE
195	2000	200-400	600	d.c.	Strip Sheet Mill	Direct	1926	Weirton Steel Co.	Weirton, W. Va.	GE
196	2000	200-350	600	d.c.	14" Strip Mill	Direct	1928	Superior Steel Corporation	Carnegie, Pa.	W
197	2000-1700	210-680	600	d.c.	14" Continuous Mill	Direct	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
198	2000	250-500	600	d.c.	20" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
199	2000	250-500	600	d.c.	20" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
200	2000	250-500	600	d.c.	20" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
201	2000	250-500	600	d.c.	20" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
202	2000	250-500	600	d.c.	20" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
203	2000	250-500	600	d.c.	20" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
204	2000	250-500	600	d.c.	21" Bar & Billet Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
205	2000	250-500	600	d.c.	21" Bar & Billet Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
206	2000	250-500	600	d.c.	14" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
207	2000	250-500	600	d.c.	14" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
208	2200	350-500	600	d.c.	20" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
209	2000-2000-1600	450-360-270	2200	60	16" Hot Strip Mill	Geared	1920	Trumbull Steel Co.	Warren, Ohio	GE
210	2000-2000-1600	450-360-270	2200	60	16" Hot Strip Mill	Geared	1920	Trumbull Steel Co.	Warren, Ohio	GE
211	2000-2000-1600	450-360-270	2200	60	16" Hot Strip Mill	Geared	1920	Trumbull Steel Co.	Warren, Ohio	GE
212	2000-1600-1200	625-500-375	6600	25	12" Strip Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	GE
213	2000-1600-1200	625-500-375	6600	25	14" Bar Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	GE
214	2100-2100	150-310	600	d.c.	14" Cont. Strip Mill	Direct	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
215	2100-1600	150-460	600	d.c.	14" Cont. Strip Mill	Direct	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
216	2200-2000-1800	275-250-225	6600	25	18" Band Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	GE
217	2200	705	2200	60	16" Strip Mill	Geared	1929	West Leechburg Steel Co.	Leechburg, Pa.	W
218	2300	200-400	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corporation	Steubenville, O.	GE
219	2500	175-350	600	d.c.	28" Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
220	2500	175-350	600	d.c.	28" Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
221	2500	175-350	600	d.c.	28" Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
222	2500	187.5	6600	25	18" Band Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	GE
223	2500	187.5	6600	25	18" Band Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	GE
224	2500	200-400	600	d.c.	Strip Sheet Mill	Direct	1926	Weirton Steel Co.	Weirton, W. Va.	GE
225	2500	200-400	600	d.c.	Strip Sheet Mill	Direct	1926	Weirton Steel Co.	Weirton, W. Va.	GE
226	2500	200-400	600	d.c.	Strip Sheet Mill	Direct	1926	Weirton Steel Co.	Weirton, W. Va.	GE
227	2500	352-176	6600	60	16" Hoop and Band Mill	Geared	1915	Weirton Steel Co.	Weirton, W. Va.	W
228	2750-2240-1750	262-214-167	6600	25	12" Hot Strip Mill	Direct	1920	Illinois Steel Co.	Gary, Ind.	GE
229	3000	125	6400	25	20" Flat Mill	Coupled	1916	American Steel & Wire Co.	Cleveland, Ohio	AC
230	3000	180-360	600	d.c.	Hot Strip Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
231	3000	180-360	600	d.c.	Hot Strip Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
232	3000	180-360	600	d.c.	Hot Strip Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
233	3000	180-360	600	d.c.	Hot Strip Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
234	3000-3000	200-360	600	d.c.	14" Continuous Mill	Geared	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
235	3000	200-400	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corporation	Steubenville, O.	GE
236	3000	200-400	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corporation	Steubenville, O.	GE
237	3000	200-400	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corporation	Steubenville, O.	GE
238	3000	200-400	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corporation	Steubenville, O.	GE
239	3000	200-300	600	d.c.	28" Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
240	3000	200-400	600	d.c.	60" Wide Strip Mill	Geared	1929	Wheeling Steel Corporation	Steubenville, Ohio	GE
241	3000	300-450	600	d.c.	20" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
242	3000-2500-2000	300-250-200	6600	25	18" Band Mill, No. 13	Direct	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
243	3000-2500-2000	300-250-200	6600	25	12" Hoop Mill, No. 13	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
244	4000	300-400	600	d.c.	60" Wide Strip Mill	Geared	1929	Wheeling Steel Corporation	Steubenville, Ohio	GE
245	4500	150-450	600	d.c.	Strip Mill	Geared	1928	Sharon Steel Hoop Co.	Sharon, Pa.	GE
246	5000	70-150	900	d.c.	27" Rev. Hot Strip Mill	Direct	1926	Columbia Steel Co.	Butler, Pa.	GE
247	5000-4000-3000	450-360-270	2200	60	16" Hot Strip Mill	Geared	1925	Trumbull Steel Co.	Warren, Ohio	GE
248	5500-4400-3400	170-136-105	6600	25	20" Hot Strip Mill	Direct	1920	Illinois Steel Co.	Gary, Ind.	GE

MERCHANT MILL DRIVES

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1	300	175–225	600	d.c.	10″ Merchant Mill	Direct	1926	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
2	300–300	187.5–112.5	2200	25	12″ Merchant Mill	Direct	1914	Bethlehem Stee Co.	Lebanon, Pa.	GE
3	300–300	187.5–112.5	2200	25	12″ Merchant Mill	Direct	1914	Bethlehem Steel Co.	Lebanon, Pa.	GE
4	300	225–450	230	d.c.	Merchant Mill	Direct	1928	Barton Spider Web Co.	Chicago, Ill.	W
5	300	250–750	250	d.c.	10″ Merchant Mill	Geared	1928	Tennessee Coal Iron R. R.	Fairfield, Ala.	CW
6	300	257	2200	60	Merchant Mill		1917	Tennessee Coal, Iron & R. R. Co.	Bessemer, Ala.	CW
7	300	267–800	230	d.c.	Hot Merchant Mill	Geared	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
8	300	267–800	230	d.c.	Hot Merchant Mill	Geared	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
9	300	267–800	230	d.c.	Hot Merchant Mill	Geared	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
10	300–300	300–180	2200	25	10″ Merchant Mill	Direct	1914	Bethlehem Steel Co.	Lebanon, Pa.	GE
11	300	300	2200	60	Merchant Mill		1917	Tennessee Coal, Iron & R. R. Co.	Bessemer, Ala.	CW
12	300–300	315–630	230	d.c.	8″ Merchant Mlli	Direct	1919	Donner Steel Co.	Buffalo, N. Y.	GE
13	300	350–500	230	d.c.	Merchant Mill	Coupled	1915	Buffalo Bolt Company	N. Tonawanda, N. Y.	CW
14	300	365	2200	25	8″ Merchant Mill	Direct	1909	Bethlehem Steel Co.	Johnstown, Pa.	W
15	300	440	2200	60	Merch. (Roughing) Mill	Coupled	1923	Ft. Wayne Rolling Mill Co.	Ft. Wayne, Ind.	AC
16	300	450	2200	50	8″ Merchant Mill		1917	Llewellyn Iron Works	Los Angeles, Cal.	GE
17	300–300	500–300	2200	25	9″ Merchant Mill	Direct	1914	Bethlehem Steel Co.	Lebanon, Pa.	GE
18	300–300	500–300	2200	25	8″ Merchant Mill	Direct	1914	Bethlehem Steel Co.	Lebanon, Pa.	GE
19	300	500	2080	25	9″ Merchant Mill	Geared	1916	Halcomb Steel Co.	Syracuse, N. Y.	GE
20	300–150	590–292	2200	60	9″ Merchant (Fin.) Mill	Geared	1920	Cleveland Hardware Co.	Cleveland, Ohio	W
21	300	600	2200	50	Merchant Mill	Geared	1916	Tennessee Coal, Iron & R. R. Co.	Bessemer, Ala.	GE
22	300	720	440	50	14″ Merchant Mill	Geared	1913	Bourne Fuller Co.	Cleveland, Ohio	GE
23	300	720	440	60	12″ Merchant Mill	Geared	1919	The Stanley Works	New Britain, Conn.	GE
24	300	750	3000	50	Merchant Mill	Geared	1923	Cons. Rolling Mills Co.	Mexico City, Mex.	GE
25	300–200	920–360	220	d.c.	Merchant Mill	Direct	1919	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
26	350–350	150–100	6600	25	12″ Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
27	350	200–300	250	d.c.	9″ Merchant Mill	Direct	1919	National Farming Machinery, Ltd.	Montmagny, P. Q.	W
28	350–350	240–480	240	d.c.	10″ Merchant Mill	Direct	1923	LaClede Steel Co.	St. Louis, Mo.	GE
29	350	250–325	230	d.c.	9″ Merchant Mill	Direct	1921	Wayne Steel Co.	Erie, Pa.	W
30	350–235	300–200	6600	25	Merchant Mill	Geared	1920	Illinois Steel Co.	Gary, Ind.	GE
31	350–350	360–240	240	d.c.	10″ Merchant Mill	Direct	1911	LaClede Steel Co.	St. Louis, Mo.	GE
32	350–350	375–214	6600	25	9″ Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
33	350	400–800	230	d.c.	8″ Merchant Mill	Direct	1928	Laclede Steel Co.	Alton, Ill.	GE
34	350	400–800	600	d.c.	10″ Merchant Mill	Geared	1929	Inland Steel Co.	Indiana Harbor, Ind.	GE
35	350	400–800	600	d.c.	10″ Merchant Mill	Geared	1929	Inland Steel Co.	Indiana Harbor, Ind.	GE
36	350	400–800	600	d.c.	10″ Merchant Mill	Geared	1929	Inland Steel Co.	Indiana Harbor, Ind.	GE
37	350	400–800	600	d.c.	10″ Merchant Mill	Geared	1929	Inland Steel Co.	Indiana Harbor, Ind.	GE
38	350	400–800	600	d.c.	10″ Merchant Mill	Geared	1929	Inland Steel Co.	Indiana Harbor, Ind.	GE
39	350	400–800	600	d.c.	10″ Merchant Mill	Geared	1929	Inland Steel Co.	Indiana Harbor, Ind.	GE
40	350	400–800	600	d.c.	10″ Merchant Mill	Geared	1929	Inland Steel Co.	Indiana Harbor, Ind.	GE
41	350	400–800	600	d.c.	10″ Merchant Mill	Geared	1929	Inland Steel Co.	Indiana Harbor, Ind.	GE
42	350	480	2200	25	12″ Roughing Stand Mill	Geared	1923	Halcomb Steel Co.	Syracuse, N. Y.	W
43	350	420	2200	50	Merchant Mill	Geared	1919	Southern California Iron & SteelCo.	Los Angeles, Cal.	W
44	350	524–850	230	d.c.	18″ Blading Mill	Geared	1924	W. E. & M. Co.	South Phila. Works	W
45	350	580	2200	60	Merchant Mill	Geared	1916	Copper Clad Steel Co.	Pittsburgh, Pa.	W
46	350	590	2200	60	12″ Merchant Mill	Geared	1918	Indianapolis & Eastern TractionCo.	Indianapolis, Ind.	W
47	350	700	2200	60	Merchant Mill	Geared	1918	Kilby Car & Foundry Co.	Anniston, Ala	W
48	400	180–540	600	d.c.	Merchant Mill	Direct	1928	American Steel & Wire Co.	Cleveland, O.	W
49	400	200–300	230	d.c.	9″ Merchant Mill	Direct	1914	United Alloy Steel Corp.	Canton, Ohio	W
50	400	210–350	230	d.c.	Merchant Mill		1915	Buffalo Bolt Company	N. Tonawanda, N. Y.	CW
51	400	223–669	600	d.c.	Merchant Mill	Direct	1928	American Steel & Wire Co.	Cleveland, O.	W
52	400	240–721	600	d.c.	9″ Merchant Mill	Geared	1926	Illinois Steel Co.	Gary, Ind.	GE
53	400	240–721	600	d.c.	9″ Merchant Mill	Geared	1926	Illinois Steel Co.	Gary, Ind.	GE
54	400	240–721	600	d.c.	9″ Merchant Mill	Geared	1926	Illinois Steel Co.	Gary, Ind.	GE
55	400	240–721	600	d.c.	9″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
56	400–400	250–500	230	d.c.	10″ Merchant Mill	Direct	1920	Timken Roller Bearing Co.	Canton, Ohio	GE
57	400	250–750	600	d.c.	Merchant Mill	Direct	1928	American Steel & Wire Co.	Cleveland, O.	W
58	400	295–885	600	d.c.	Merchant Mill	Direct	1928	American Steel & Wire Co.	Cleveland, O.	W
59	400	300	2200	25	Merchant Mill	Rope	1909	American Steel & Wire Co.	Cleveland, Ohio	GE
60	400	300	2200	25	Merchant Mill	Rope	1909	American Steel & Wire Co.	Cleveland, Ohio	GE
61	400	300	2500	25	Merchant Mill	Rope	1909	American Steel & Wire Co.	Cleveland, Ohio	GE
62	400	300	2200	25	Merchant Mill	Rope	1909	American Steel & Wire Co.	Cleveland, Ohio	GE
63	100–500	300–600	600	d.c.	9″ Finishing Mill	Geared	1921	Driver Harris Co.	Harrison, N. J.	W
64	400	385	550	40	22″ Puddle Mill	Geared	1917	Cohoes Rolling Mill Co.	Cohoes, N. Y.	W
65	400	400–450	220	d.c.	8″ Merchant Mill	Direct	1911	Illinois Steel Co.	Milwaukee, Wis.	W
66	400	400	2200	60	9″ Merchant Mill	Belted	1928	Carpenter Steel Co.	Reading, Pa.	GE
67	400	420–1050	250	d.c.	10″ Merchant Mill	Geared	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
68	400	440	440	60	8″ Mill	Chain	1928	Phoenix Horseshoe Co.	Joliet, Ill.	W
69	400	440	440	60	8″ Mill	Chain	1928	Phoenix Horseshoe Co.	Joliet, Ill.	W
70	400	440	440	60	8″ Mill	Chain	1928	Phoenix Horseshoe Co.	Joliet, Ill.	W
71	400	485	440	25	9″ Merchant Mill	Geared	1915	Hess Steel Corporation	Baltimore, Md.	W
72	400	480	440	25	Merchant Mill	Geared	1927	Bethlehem Steel Co.	Lackawanna, N. Y.	CW
73	400	585	4000	60	14″ Merchant Mill	Geared	1922	Calumet Steel Co.	Chicago, Ill.	W
74	400	600	440	60	12″ Merchant Mill	Geared	1919	The Stanley Works	New Britain, Conn.	GE
75	400	700	440	60	Merchant Mill	Geared	1928	Vulcan Crucible Steel Co.	Aliquippa, Pa.	W
76	450	211–422	600	d.c.	9″ Merchant Mill	Geared	1926	Illinois Steel Co.	Gary, Ind.	GE
77	450	211–422	600	d.c.	9″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
78	450	354–230	2200	60	8″ Merchant Mill	Direct	1919	Bourne-Fuller Co.	Cleveland, Ohio	W
79	450	440	2200	60	Merchant Mill	Geared	1920	Kansas City Bolt & Nut Co.	Kansas City, Mo.	W
80	450	450	2080	60	18″ Merchant Mill	Geared	1919	Columbia Steel Co.	Pittsburgh, Cal.	GE
81	450	450	2080	60	12″ Merchant Mill	Geared	1919	Columbia Steel Co.	Pittsburgh, Cal.	GE
82	450	585	2200	50	14″ Merchant Mill	Geared	1918	Columbia Steel Co.	Los Angeles, Cal.	W
83	450	730–490	4000	25	10″ Merchant Mill	Geared	1917	Atlas Steel Corporation	Dunkirk, N. Y.	W
84	450–360	870–695	2200	60	10″ Merchant Mill	Geared	1913	Cleveland Hardware Co.	Cleveland, Ohio	W
85	450–360	875–700	2200	60	9″ Merchant Mill	Geared	1915	National Lock Washer Co.	Riverside, N. J.	W
86	475–350	240–181	440	25	10″ Merchant Mill	Direct	1914	Kansas City Bolt & Nut Co.	Kansas City, Mo.	W
87	485–360	870–695	2200	60	10″ Merchant Mill	Geared	1915	Old Dominion Iron & Nail Co.	Richmond, Va.	W
88	500	88	6600	25	16″ Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
89	500–385–250	130–100–65	440	25	14″ Merchant Mill	Direct	1923	Halcomb Steel Co.	Syracuse. N. Y.	GE
90	500	130–310	600	d.c.	10″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
91	500	150–225	250	d.c.	12″ Merchant Mill	Direct	1919	National Farming Machinery, Ltd.	Montmagny, P. Q.	W
92	500	150–550	600	d.c.	10″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
93	500	150–450	230	d.c.	Merchant Mill	Direct	1928	Barton Spider Web. Co.	Chicago, Ill.	W
94	500	150–300	600	d.c.	10″ Merchant Mill	Direct	1928	Steel Co. of Canada	Hamilton, Ont.	W
95	500	173–432	600	d.c.	10″ Merchant Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
96	500	173–432	600	d.c.	10″ Merchant Mill	Geared	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
97	500	175–350	250	d.c.	12″ Merchant Mill	Direct	1926	Pittsburgh Cruc'ble Steel Co.	Midland, Pa.	GE
98	500	184	2200	25	12″ Merchant Mill	Rope	1905	Ontario Iron & Steel Co.	Welland, Ont.	W
99	500	184	2200	25	16″ Merchant Mill	Direct	1908	Bethlehem Steel Co.	Johnstown, Pa.	W
100	500	190	230	d.c.	18″ Tandem Mer. (Roughing) Mill	Rope	1910	Sharon Steel Hoop Co.	Sharon, Pa.	GE
101	500	200–400	250	d.c.	10″ Cont. Rolling Mill	Coupled	1925	Republic Iron & Steel Co.	Youngstown, Ohio	AC
102	500	200–400	600	d.c.	10″ Merchant Mill	Direct	1928	Steel Co. of Canada	Hamilton, Ont.	W
103	500	212–495	600	d.c.	10″ Merchant Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
104	500	212–495	600	d.c.	10″ Merchant Mill	Geared	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
105	500–330	242–161	440	25	16″ and 10″ Merchant Mill	Direct & Rope	1913	Kansas City Bolt & Nut Co.	Kansas City, Mo.	W
106	500	244	2200	25	10″ Merchant Mill	Direct	1908	Bethlehem Steel Co.	Johnstown, Pa.	W
107	500	250–350	600	d.c.	9″ Merchant Mill	Direct	1921	Missouri Rolling Mill Co.	St. Louis, Mo.	W

MERCHANT MILL DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
108	500	250–500	600	d.c.	10″ Merchant Mill	Direct	1928	Steel Co. of Canada	Hamilton, Ont.	W
109	500	250–580	600	d.c.	10″ Merchant Mill	Geared	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
110	500	258–580	600	d.c.	10″ Merchant Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
111	500	267–800	230	d.c.	Hot Merchant Mill	Geared	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
112	500	267–800	230	d.c.	Hot Merchant Mill	Geared	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
113	500	267–800	230	d.c.	Hot Merchant Mill	Direct	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
114	500	267–800	230	d.c.	Hot Merchant Mill	Direct	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
115	500	267–800	230	d.c.	Hot Merchant Mill	Direct	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
116	500	267–800	230	d.c.	Merchant Mill	Geared	1927	Allegheny Steel Co.	Breckenridge, Pa.	GE
117	500	277	440	60	10″ Merchant Mill	Direct	1929	Hoskins Mfg. Co.	Detroit, Mich.	W
118	500	300–681	600	d.c.	10″ Merchant Mill	Geared	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
119	500	292	4000	60	8″ Merchant Mill	Direct	1920	Calumet Steel Co.	Chicago, Ill.	W
120	500	320	2200	60	12″ Merchant Mill	Geared	1919	Baltimore & Ohio Railroad	Cumberland, Md.	W
121	500–500	327–200	440	60	9″ Merchant Mill	Direct	1913	Union Rolling Mills Co.	Cleveland, Ohio	GE
122	500	360	2200	25	8″ Merchant Mill	Direct	1912	Bethlehem Steel Co.	Johnstown, Pa.	W
123	500	400–800	230	d.c.	12″–9″ Merchant Mill	Geared	1928	Timken Roller Bearing Co.	Canton, O.	AC
124	500	435	440	60	8″ Merchant Mill	Rope	1911	Carnegie Steel Co., Painter Mill	Pittsburgh, Pa.	W
125	500	435	440	60	8″ Merchant Mill	Rope	1912	Carnegie Steel Co., Painter Mill	Pittsburgh, Pa.	W
126	500	435	440	60	8″ Merchant Mill	Rope	1912	Carnegie Steel Co., Painter Mill	Pittsburgh, Pa.	W
127	500	435	440	60	9″ Merchant (Fin.) Mill	Belted	1914	Carnegie Steel Co., Painter Mill	Pittsburgh, Pa.	W
128	500	435	440	60	10″ Merchant (Fin.) Mill	Belted	1914	Carnegie Steel Co., Painter Mill	Pittsburgh, Pa.	W
129	500	435	2200	60	Merchant Mill	Geared	1916	Seymour Manufacturing Co.	Waterbury, Conn.	W
130	500	480–250	230	d.c.	Merchant Mill	Coupled	1923	Buffalo Bolt Company	N. Tonawanda, N. Y.	CW
131	500	450	2300	60	Merchant Mill	Geared	1916	Pacific Coast Steel Co.	San Francisco, Cal.	GE
132	500	487	6600	25	8″ Merchant Mill	Direct	1913	Minnesota Steel Co.	Duluth, Minn.	W
133	500 500–500	500–375–265	2200	25	10″ Merchant Mill	Direct & Belt	1916	Donner Steel Co.	Buffalo, N. Y.	GE
134	500	500	2300	25	18″ Merchant Mill	Geared	1919	Halcomb Steel Co.	Syracuse, N. Y.	GE
135	500	575–865	2200	50	10″ Merchant Mill	Geared	1921	International Nickel Co.	Huntington, W. Va.	W
136	500	575–865	2200	60	10″ Merchant Mill	Geared	1921	International Nickel Co.	Huntington, W. Va.	W
137	500	600	2200	60	Merchant Mill	Geared	1923	Taunton-New Bedf'd Cop. Co.	Taunton, Mass.	GE
138	500–330	730–485	2200	50	8″ Merchant Mill	Geared	1919	Southern California Iron & SteelCo.	Los Angeles, Cal.	W
139	500–250	750–375	3000	50	Merchant Mill	Geared	1923	Consolidated Rolling Mills Co.	Mexico City, Mex.	GE
140	500–400	775–585	550	40	10″ Merchant Mill	Geared	1917	Cohoes Rolling Mill Co.	Cohoes, N. Y.	W
141	500	870	2200	60	16″ Merchant Mill	Geared	1919	McConway Torley Co.	Pittsburgh, Pa.	W
142	500–400	875–700	550	60	10″ & 14″ Merchant Mill	Geared	1916	The Texas Steel Co.	Fort Worth, Tex.	W
143	500	884	2200	60	9″ Rougher Mill	Geared	1925	Crucible Steel Co.	Atha Works	W
144	500	888–540	6600	50	11″ Finishing Stand. Mil	Coupled		Tennessee Coal, Iron & R. R. Co.	Birmingham, Ala.	AC
145	500–250	890–513 440–256	2200	50	10″ Merchant Mill	Geared	1919	Hunter Crucible Steel Co.	Cleveland, Ohio	W
146	500	900	440	60	10″ Merchant Mill	Geared	1925	Latrobe Elec. Steel Co.	Latrobe, Pa.	GE
147	525	125	2200	25	Merchant Mill	Rope	1910	American Sheet & Tin Plate Co.	Gary, Ind.	GE
148	550	120–300	250	d.c.	11″ Merchant Mill	Direct	1923	Firth Sterling Steel Co.	McKeesport, Pa.	W
149	550	336–588	600	d.c.	9″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
150	550	420–714	600	d.c.	9″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
151	550	420–714	600	d.c.	9″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
152	550–360	875–585	2200	60	12″ Merchant Mill	Geared	1917	Norfolk & Western Railroad Co.	Roanoke, Va.	W
153	550	880	2200	60	16″ Merchant Mill	Geared	1919	Danville Structural Tube Co.	Danville, Pa.	W
154	550	880	2200	60	Merchant Mill	Geared	1921	Danville Structural Tube Co.	Danville, Pa.	W
155	575	300–214	6600	25	10″ Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
156	575–575	375–250	6600	25	8″ Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
157	600	200–300	230	d.c.	9″ Merchant Mill	Direct	1914	United Alloy Steel Corporation	Canton, Ohio	W
158	600	200–300	230	d.c.	9″ Merchant Mill	Direct	1915	United Alloy Steel Corporation	Canton, Ohio	W
159	600	200–400	250	d.c.	9″ Merchant Mill	Direct	1929	Carpenter Steel Co.	Reading, Pa.	W
160	600	205–515	600	d.c.	Merchant Mill	Geared	1928	American Steel & Wire Co.	Cleveland, O.	W
161	600	205–515	600	d.c.	Merchant Mill	Geared	1928	American Steel & Wire Co.	Cleveland, O.	W
162	600	227–454	230	d.c.	12″–9″ Merchant Mill	Geared	1928	Timken Roller Bearing Co.	Canton, O.	AC
163	600–600	214– 93	6600	25	12″ Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
164	600–525	250–125	2200	25	16″ & 14″ Merchant Mill	Direct & Rope	1913	Bethlehem Steel Co.	Steelton, Pa.	GE
165	600–400–200	421–214–107	440	25	9″ Merchant Mill	Direct	1923	Halcomb Steel Co.	Syracuse, N. Y.	GE
166	600	350–788	250	d.c.	10″ Merchant Mill	Geared	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
167	600	350–788	250	d.c.	10″ Merchant Mill	Geared	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
168	600	350–788	250	d.c.	10″ Merchant Mill	Geared	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
169	600	365	6600	25	10″ Merchant Mill	Direct	1913	Minnesota Steel Co.	Duluth, Minn.	W
170	600–400	375–210	2200	25	9″ Merchant Mill	Direct	1912	Gulf States Steel Co.	Birmingham, Ala.	GE
171	600	390	440	60	20″ Merchant Mill	Geared	1916	Stanley Works	New Haven, Conn.	W
172	600	400–800	250	d.c.	18″ Merchant Mill	Geared	1926	Pittsburgh Crucible Steel Co.	Midland, Pa.	GE
173	600	425–850	250	d.c.	12″ Merchant Mill	Geared	1929	Carpenter Steel Co.	Reading, Pa.	W
174	600	450–900	600	d.c.	10″ Merchant Mill	Geared	1928	Steel Co. of Canada	Hamilton, Ont.	W
175	600	450–900	600	d.c.	10″ Merchant Mill	Geared	1928	Steel Co. of Canada	Hamilton, Ont.	W
176	600–600–600	469–375–281	2200	25	8″ Merchant Mill	Direct	1919	Donner Steel Co.	Buffalo, N. Y.	GE
177	600	485	2200	25	10″ Merchant (Fin.) Mill	Direct	1912	Laclede Steel Co.	Alton, Ill.	W
178	600	485	440	25	20″ Merchant Mill	Geared	1915	Hess Steel Corporation	Baltimore, Md.	W
179	600	500	2200	60	20″ Merchant Mill	Geared	1916	Carpenter Steel Co.	Reading, Pa.	W
180	600	500	2200	60	16″ Merchant Mill	Geared	1917	Central Steel Co.	Massillon, Ohio	W
181	600	500	440	25	16″ Merchant Mill	Geared	1919	Buffalo Bolt Co.	N. Tonawanda, N. Y.	GE
182	600–440	514–300	4150	60	10″ Merchant Mill	Rope	1912	W. Ames & Co.	Jersey City, N. J.	GE
183	600	585–325	550	40	16″ Merchant Mill	Geared	1917	Cohoes Rolling Mill Co.	Cohoes, N. Y.	W
184	600–500–400	500–500–406	2200	25	Merchant Mill, No. 10	Direct	1916	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
185	600	600	2200	60	8″ Merchant Mill	Geared	1928	Timken Roller Bearing Co.	Canton, O.	GE
186	600	600	2200	60	18″ Merchant Mill	Geared	1929	Carpenter Steel Co.	Reading, Pa.	GE
187	600	705	2200	60	Merchant Mill	Geared	1927	Pollak Steel Co.	Cincinnati, O.	W
188	600	900	2300	60	10″ Mill	Geared	1927	Copperweld Steel Co.	Glassport, Pa.	GE
189	650	160	440	60	14″ Guide Mill	Coupled		Withrow Steel Co.	Neville Island, Pa.	AC
190	650	184	6600	25	18″ Merchant Mill	Direct	1909	Indiana Steel Co.	Gary, Ind.	W
191	650	184	6600	25	14″ Merchant Mill	Direct	1909	Indiana Steel Co.	Gary, Ind.	W
192	650	200	440	60	14″ Guide Mill	Coupled		Withrow Steel Co.	Neville Island, Pa.	AC
193	650	210	6600	25	12″ Merchant Mill	Geared	1909	Indiana Steel Co.	Gary, Ind.	W
194	650	293	2200	60	9″ Merchant Mill	Rope	1919	Harrisburg Pipe & Pipe Bending Co.	Harrisburg, Pa.	W
195	650	500	6600	25	10″ Merchant Mill	Direct	1916	Illinois Steel Co.	Gary, Ind.	GE
196	650	500	6600	25	10″ Merchant Mill	Direct	1916	Illinois Steel Co.	Gary, Ind.	GE
197	700	130–310	600	d.c.	10″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
198	700	130–310	600	d.c.	10″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
199	700	187	2200	25	14″ Merchant Mill	Direct	1920	Donner Steel Co.	Buffalo, NY.	GE
200	700	210–660	600	d.c.	10″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
201	700	210–660	600	d.c.	10″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
202	700	240–450	250	d.c.	9″ Merchant Mill	Direct	1925	Crucible Steel Co.	Pittsburgh, Pa.	GE
203	700	270–520	250	d.c.	10″ Merchant Mill	Direct	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
204	700	364	2200	25	8″ Merchant Mill	Direct	1912	Laclede Steel Co.	Alton, Ill.	W
205	700–600–400	400–300–200	2200	25	Merchant Mill, No. 10	Direct	1916	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
206	700–600–400	400–300–200	2200	25	Merchant Mill, No. 10	Belt	1916	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
207	700	440	2200	60	16″ Mill	Geared	1926	Connors Steel Co.	Birmingham, Ala.	AC
208	700	480–290	2200	25	12″ Merchant Mill	Geared	1916	Halcomb Steel Co.	Syracuse, N. Y.	W
209	700	730–490	4000	25	14″ Merchant Mill	Geared	1916	Atlas Steel Corporation	Dunkirk, N. Y.	W
210	700	735	4000	25	14″ Merchant Mill	Geared	1920	Atlas Steel Corporation	Dunkirk, N. Y.	W
211	700	880–530	2200	60	10″ Finishing Mill	Geared	1923	Crucible Steel Co. of America, Park Works	Pittsburgh, Pa.	W

MERCHANT MILL DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
212	700	900–720	2200	60	10″ Merchant Mill	Geared	1929	Manitoba Bridge & Iron Works	Calgary, Can.	GE
213	750	150–250	600	d.c.	14″ Merchant Mill	Direct	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
214	750	200–600	600	d.c.	Merchant Mill	Geared	1928	American Steel & Wire Co.	Cleveland, O.	W
215	750	200–400	250	d.c.	12″ Merchant Mill	Direct	1929	Carpenter Steel Co.	Reading, Pa.	W
216	750	277	2200	66	18″ Merchant Mill	Geared	1915	Pacific Coast Steel Co.	San Francisco, Cal.	GE
217	750	360–600	250	d.c.	10″ Merchant Mill	Direct	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
218	750	400–800	600	d.c.	10″ Merchant Mill	Geared	1929	Inland Steel Co.	Indiana Harbor, Ind.	GE
119	750	400–800	600	d.c.	10″ Merchant Mill	Geared	1929	Inland Steel Co.	Indiana Harbor, Ind.	GE
220	750	425–850	250	d.c.	16″ Merchant Mill	Geared	1929	Carpenter Steel Co.	Reading, Pa.	W
221	750	514	2200	60	Merchant Mill	Geared	1920	W. M. Lewis	Indianapolis, Ind.	AC
222	800	163	2200	25	22″ Merchant Mill	Rope	1905	Ontario Iron & Steel Co.	Welland, Ont.	W
223	800	189	2200	60	Merchant Mill	Direct	1925	Pacific Coast Steel Co.	San Francisco, Cal.	CW
224	800	200–400	250	d.c.	9″ 7 Stand Merchant Mill	Coupled	1926	Crucible Steel Co. of America	Harrison, N. J.	AC
225	800	200–415	600	d.c.	12″ Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	GE
226	800	200–415	600	d.c.	12″ Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	GE
227	800	200–415	600	d.c.	12″ Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	GE
228	800	200–600	500	d.c.	10″ Merchant Rod & Strip Mill	Geared	1927	Ford Motor Co.	Detroit, Mich.	W
229	800–800	214–167	6600	25	16″ Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
230	800	240–480	600	d.c.	12″ Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	GE
231	800	257	2200	60	18″ Merchant Mill	Geared	1919	Columbia Steel Co.	Pittsburgh, Cal.	GE
232	800	268	2200	60	14″ & 10″ Merchant Mill	Rope	1912	United Alloy Steel Corporation	Canton, Ohio	W
233	800	275–550	700	d.c.	12″ Merchant Mill	Geared	1925	Penn Seaboard Steel Co.	New Castle, Del.	GE
234	800	275–550	700	d.c.	12″ Merchant Mill	Geared	1925	Penn Seaboard Steel Co.	New Castle, Del.	GE
235	800	275–550	700	d.c.	9″ Merchant Mill	Direct	1925	Penn Seaboard Steel Co.	New Castle, Del.	GE
236	800	300	2300	60	10″ Merchant Mill	Geared	1928	Laclede Steel Co.	Madison, Ill.	GE
237	800	320	440	60	9″ Merchant Mill	Belted	1914	Carnegie Steel Co. Painter Mill	Pittsburgh, Pa.	W
238	800	320	440	60	10 ″ Merchant Mill	Belted	1914	Carnegie Steel Co. Painter Mill	Pittsburgh, Pa.	W
239	800	350–700	600	d.c.	20″ Merchant (Breakd'n)	Geared	1921	Driver Harris Co.	Harrison, N. J.	W
240	800	350–750	600	d.c.	8″ Merchant Mill Cont.	Direct	1925	Inland Steel Co.	Indiana Harbor, Ind.	GE
241	800	353	2200	60	12″-5 Stand. Merch. Mill	Belt	1924	United Steel Co.	Everett, Wash.	W
242	800	367	2200	25	8″ Merchant Mill	Direct	1917	Donner Steel Co.	BuZalo, N. Y.	W
243	800	375	2200	25	Merchant Mill	Geared	1920	Bethlehem Steel Co.	Johnstown, Pa.	GE
244	800	400–600	600	d.c.	16″ Merchant Mill	Geared	1921	Missouri Rolling Mill Co.	St. Louis, Mo.	W
245	800	400–800	600	d.c.	Rod and Merchant Mill	Geared	1928	Atlantic Steel Co.	Atlanta, Ga.	GE
246	800	410–720	230	d.c.	16″ Merchant (Rougher)	Geared	1923	Timken Roller Bearing Co.	Canton, Ohio	W
247	800	440	2200	60	18″ Merchant (Fin.) Mill	Geared	1918	Canton Sheet Steel Co.	Canton, Ohio	W
248	800	495	2200	25	Merchant Mill	Geared	1929	Scullin Steel Co.	St. Louis, Mo.	W
249	800	510–870	250	d.c.	10″ Merchant Mill	Direct	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
250	800	705	2200	60	12″ Merchant Mill	Geared	1919	McConway Torley Co.	Pittsburgh, Pa.	W
251	800	730–365	2200	50	12″ Merchant Mill	Geared	1917	Columbia Steel Co.	Los Angeles, Cal.	W
252	800	730–365	2200	50	22″ Merchant Mill	Geared	1917	Columbia SteelCo.	Los Angeles, Cal.	W
253	800	730–485	2200	50	12″ Merchant Mill	Geared	1919	Southern CaliforniaIron & Steel Co.	Los Angeles, Cal.	W
254	800	760–1050	250	d.c.	10″ Merchant Mill	Direct	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
255	800	875–700	2200	60	16″ Merchant Mill	Geared	1926	Kansas City Bolt & Nut Co.	Kansas City, Mo.	W
256	800	892–623	2200	60	20″ Merchant (Fin.) Mill	Geared	1918	Hoosier Rolling Mill	Terre Haute Ind.	W
257	800–800	900–720	2200	60	9″ Merchant Mill	Geared	1923	Knoxville Iron Co.	Knoxville, Tenn.	GE
258	800–800	900–720	2200	60	9″ Merchant Mill	Geared	1923	Knoxville Iron Co.	Knoxville, Tenn.	GE
259	840–700–560	360–300–240	6600	25	9″ Merchant Mill	Direct	1925	Bethlehem Steel Co.	Bethlehem, Pa.	GE
260	850–570	214–143	6600	25	Merchant Mill	Direct	1920	Illinois Steel Co.	Gary, Ind.	GE
261	850–850	214–187	6600	25	10″ Merchant Mill	Rope	1916	Illinois Steel Co.	Gary, Ind.	GE
262	850–850	214–187	6600	26	10″ Merchant Mill	Rope	1916	Illinois Steel Co.	Gary, Ind.	GE
263	800	94	2200	25	18″ Merchant Mill	Direct	1912	Gulf States Steel Co.	Birmingham, Ala.	GE
264	800	100	6600	25	16″ Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
265	850	514	2200	60	14″ Merchant Mill	Geared	1927	Copperweld Steel Co.	Glassport, Pa.	W
266	900–900	214–150	2200	25	12″ Merchant Mill	Direct	1910	Algoma Steel Co.	Sault St. Marie, Can.	GE
267	1000	175–350	250	d.c.	10″ Merchant Mill	Direct	1929	Carpenter Steel Co.	Reading, Pa.	W
268	1000	184	2200	25	16″ Merchant Mill	Direct	1908	Bethlehem Steel Co.	Johnstown, Pa.	W
269	1000	189–½	2200	60	Wire Mill	Direct	1928	American Steel & Wire Co.	Cleveland, Ohio	W
270	1000	200–600	600	d.c.	10″ Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	W
271	1000	200–400	250	d.c.	10″ Merchant Mill	Direct	1929	Carpenter Steel Co.	Reading, Pa.	W
272	1000	250	2200	60	18″ Merchant Mill	Geared	1918	Canton Sheet & Steel Co.	Canton, Ohio	W
273	1000	290–500	600	d.c.	9″ Merchant Mill	Geared	1926	Illinois Steel Co.	Gary, Indiana	GE
274	1000	295	2200	60	12″ Cont. and 10″ Merchant Mill	Rope & Direct	1920	Kansas City Bolt & Nut Co.	Kansas City, Mo.	W
275	1000	300	2200	25	10″ Merchant Mill	Geared	1916	Halcomb Steel Co.	Syracuse, N. Y.	GE
276	1000	350–150	2200	60	12″ Merchant Mill	Direct	1918	Central Steel Co.	Massillon, Ohio	W
277	1000	365	2200	50	Merchant Mill	Geared	1923	Columbia Steel Co.	Torrance, Cal.	W
278	1000	375	4400	25	Merchant Mill	Geared	1919	Buffalo Bolt Co.	N. Tonawanda, N. Y.	GE
279	1000	400–800	230	d.c.	10″ Merchant Mill	Geared	1928	Bourne Fuller Co.	Cleveland, Ohio	GE
280	1000	450–900	600	d.c.	10″ Merchant Mill	Geared	1928	Steel Co. of Canada	Hamilton, Ont.	W
281	1000	518–800	250	d.c.	20″ Merchant Mill	Geared	1919	National Farming Machinery, Ltd.	Montmagny, P. Q.	W
282	1000	536–750	600	d.c.	10″ Merchant Mill	Geared	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
283	1000	536–750	600	d.c.	10″ Merchant Mill	Geared	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
284	1000	590–450	4000	60	14″ Merchant Mill	Geared	1920	Calumet Steel Co.	Chicago, Ill.	W
285	1000	590–450	4000	60	14″ Merchant Mill	Geared	1920	Calumet Steel Co.	Chicago, Ill.	W
286	1000	725	2200	25	12″ Merchant Mill	Geared	1922	Burlington Steel Co., Ltd.	Hamilton, Ont.	W
287	1100	294–205	2200	60	20″ Merchant Mill	Rope	1912	United Alloy Steel Corporation	Canton, Ohio	W
288	1190–875–525	450–250–150	2200	25	Merchant Mill	Direct-Rope	1925	Bethlehem Steel Co.	Lebanon, Pa.	GE
289	1200–1200	150–250	230	d.c.	12″ Merchant Mill	Direct	1920	Timken Roller Bearing Co.	Canton, Ohio	GE
290	1200	292	2200	25	12″ Cont. and 10″	Direct				
291	1200	160–320	250	d.c.	12″ Merchant Mill Merchant Mill	Direct & Rope	1926 1912	Pittsburgh Crucible Steel Co. Laclede Steel Co.	Midland, Pa. Alton, Ill.	GE W
292	1200–1150–800	300–214–150	2200	25	Merchant Mill, No. 10	Geared	1916	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
293	1200–1000–800	300–250–200	4400	25	14″ Merchant Mill	Direct	1919	Buffalo Bolt Co.	N. Tonawanda, N. Y.	GE
294	1200	300–500	600	d.c.	10″ Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	W
295	1200	300–600	230	d.c.	12″-9″ Merchant Mill	Geared	1928	Timken Roller Bearing Co.	Canton, Ohio	AC
296	1200–1200–865	340–277–200	2200	60	11″ Merchant Mill	Geared	1927	Bourne Fuller Co.	Cleveland, Ohio	GE
297	1200	368	2200	50	20″ Merchant Mill	Geared	1919	Southern California Iron & Steel Co.	Los Angeles, Cal.	W
298	1200	485	6400	25	12″ Merchant Mill	Geared	1916	American Steel & Wire Co.	Cleveland, Ohio	W
299	1200	514	2200	60	8″ Merchant Mill	Geared	1928	Timken Roller Bearing Co.	Canton, Ohio	GE
300	1200	590–407	2200	60	20″ Mer. (Rough.) Mill	Geared	1918	Hoosier Rolling Mill Co.	Terre Haute, Ind.	W
301	1200	600–400	2200	60	18″ Merchant Mill	Geared	1929	Manitoba Bridge & Iron Works	Calgary, Can.	GE
302	1250	300–550	500	d.c.	10″ Merchant Mill	Direct	1927	Ford Motor Co.	Detroit, Mich.	W
303	1250	375	2200	25	Merchants Bar Mill	Geared	1919	Valley Steel Co.	Milwaukee, Wis.	AC
304	1250	712–430	6600	60	3 Stand 12″ Mill	Coupled	1921	Tennessee Coal, Iron & R. R. Co.	Birmingham, Ala.	AC
305	1300– 900	214–140	2200	25	12″ Merchant Mill	Direct	1912	Gulf States Steel Co.	Birmingham, Ala.	GE
306	1300–1300	214–187	6600	25	10″ Merchant Mill	Geared	1916	Illinois Steel Co.	Gary, Ind.	GE
307	1400– 900	40–60–190	600	d.c.	10″ Merchant Mill	Geared	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
308	1400– 945	600–405	2200	60	21″ Merchant Mill	Geared	1915	Union Rolling Mills Co.	Cleveland, Ohio	GE
309	1500	50–80	600	d.c.	8″ Merchant Cont. Mill	Direct	1925	Inland Steel Co.	Indiana Harbor, Ind.	GE
310	1500	80	2200	60	Morgan Cont. Mill	Coupled	1920	Interstate Iron & Steel Co.	Chicago, Ill.	AC
311	1500	94	2200	25	18″ Merchant Mill	Direct	1910	Algoma Steel Co.	S'lt. St. Marie, Can.	GE
312	1500	100–150	600	d.c.	14″ Merchant Mill	Direct	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
313	1500	110–300	600	d.c.	14″–18″ Merchant Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
314	1500	110–300	600	d.c.	14″–18″ Merchant Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
315	1500	133–338	600	d.c.	10″ Merchant Mill	Direct	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC

MERCHANT MILL DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
316	1500	135–337	600	d.c.	10″ Merchant Mill	Geared	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
317	1500	200–300	600	d.c.	10″ Merchant Mill	Direct	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
318	1500	218–145	6600	25	18″ Merchant Mill	Geared	1916	Carnegie Steel Co.	Duquesne, Pa.	W
319	1500–1250–875	300–250–175	2200	50	Merchant Mill	Direct	1925	Southern Calif. Iron & Steel Co.	Los Angeles, Cal.	GE
320	1500	300–681	600	d.c.	10″ Merchant Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
321	1500–1200–900	320–275–200	2200	60	10″ Merchant Mill	Geared	1925	Pacific Coast Steel Co.	San Francisco, Cal.	GE
322	1500	360–240	6600	25	12″ Merchant Mill	Rope	1916	Carnegie Steel Co.	Duquesne, Pa.	W
323	1500–1125	375–281	2200	25	10″ Merchant Mill	Geared	1916	Donner Steel Co.	Buffalo, N. Y.	GE
324	1500	593	6600	60	6 Stand 11″ Mill	Coupled	1921	Tennessee Coal, Iron & R. R. Co.	Birmingham, Ala.	AC
325	1500	890–540	6600	60	4 Stand 12″ Mill	Coupled	1921	Tennessee Coal, Iron & R. R. Co.	Birmingham, Ala.	AC
326	1750–1750–1140	485–360–235	2200	60	16″-14″ Merchant Mill	Geared	1927	Bourne Fuller Co.	Cleveland, Ohio	GE
327	1800	200–400	600	d.c.	8″ Merchant Cont. Mill	Geared	1925	Inland Steel Co.	Indiana Harbor, Ind.	GE
328	1800–1800	250–125	6600	25	22″ Merchant Mill	Geared	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
329	1800	350–640	500	d.c.	18″ Rougher Merch. Mill	Geared	1926	Pittsburgh Crucible Steel Co.	Midland, Pa.	AC
330	1800	475–550	550	d.c.	Merchant Mill	Direct	1928	Pittsurgh Steel Co.	Monessen, Pa.	CW
331	1800	550–650	250	d.c.	22″ Merchant Mill	Geared	1925	Crucible Steel Co.	Pittsburgh, Pa.	GE
332	2000	94	2200	25	18″ Merchant Mill	Direct	1912	Forged Steel Wheel Co.	Butler, Pa.	GE
333	2000–900	40–97–190	350–600–850	d.c.	10″ Merchant Mill	Direct	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
334	2000	113	6600	25	12″ Merchant Mill	Direct	1909	Indiana Steel Co.	Gary, Ind.	W
335	2000	134–275	600	d.c.	10″ Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	W
336	2000	137½–275	500	d.c.	10″ Merchant-Rod & Strip Mill	Direct	1927	Ford Motor Co.	Detroit, Mich.	W
337	2000	163–113	6600	25	10″ Merchant Mill	Direct	1909	Indiana Steel Co.	Gary, Ind.	W
338	2000	230–460	600	d.c.	Merchant Mill	Direct	1925	International Harvester Co.	Chicago, Ill.	W
339	2000	230–460	600	d.c.	Merchant Mill	Direct	1925	International Harvester Co.	Chicago, Ill.	W
340	2000	230–460	600	d.c.	Merchant Mill	Direct	1925	International Harvester Co.	Chicago, Ill.	W
341	2000	250–150	2200	60	Morgan Cont. Mill	Coupled	1919	Interstate Iron & Steel Co.	Chicago, Ill.	AC
342	2000	315–500	600	d.c.	10″ Merchant Mill	Geared	1926	Illinois Steel Co.	Gary Ind.	GE
343	2000	500–300	2200	50	22″ Merchant Mill	Geared	1927	Columbia Steel Corp.	Torrance, Calif.	GE
344	2500	113–91	6600	25	12″ Merchant Mill	Direct	1909	Indiana Steel Co.	Gary, Ind.	W
345	3000	209	6600	25	12″ and 16″ Merchant Mill	Rope & Geared	1913	Minnesota Steel Co.	Duluth, Minn.	W
346	3000	375	2200	25	14″ Merchant Mill	Geared	1916	Donner Steel Co.	Buffalo, N. Y.	GE
347	3000	505–300	2200	60	12″ Merchant Mill	Geared	1920	United Alloy Steel Corporation	Canton, Ohio	W
348	3200	91	6600	25	18″ Merchant Mill	Geared	1909	Indiana Steel Co.	Gary, Ind.	W
349	3200	91	6600	25	14″ Merchant Mill	Geared	1909	Indiana Steel Co.	Gary, Ind.	W
350	4000	147	6600	25	20″ Merchant Mill	Geared	1916	Illinois Steel Co.	Gary, Ind.	W
351	4500–4500	67.5–110	500	d.c.	14″ Merchant Mill	Geared	1923	Ford Motor Co.	Detroit, Mich.	GE
352	4500–4500	500–300	2200	25	14″ Merchant Mill	Geared	1923	Inland Steel Co.	Indiana Harbor, Ind.	GE
353	5600	60–180	600	d.c.	14″–18″ Merchant Mill	Geared	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
354	5610–4500–3370	156-125-93.6	6600	25	12″ Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, O.	GE

WIRE MILLS

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1	300	375	2200	25	Wire Mill	Geared	1910	Bethlehem Steel Co.	Johnstown, Pa.	GE
2	300	375	2200	25	Wire Mill	Geared	1910	Bethlehem Steel Co.	Johnstown, Pa.	GE
3	300	375	2200	25	Wire Mill	Geared	1910	Bethlehem Steel Co.	Johnstown, Pa.	GE
4	300	375	2200	25	Wire Mill	Geared	1910	Bethlehem Steel Co.	Johnstown, Pa.	GE
5	300	375	2200	25	Wire Mill	Belt	1915	American Steel & Wire Co.	Cleveland, Ohio	GE
6	300	375	2200	25	Wire Mill	Belt	1915	American Steel & Wire Co.	Cleveland, Ohio	GE
7	300	375	2200	25	Wire Mill	Belt	1915	American Steel & Wire Co.	Cleveland, Ohio	GE
8	300	375	2200	25	Wire Mill	Belt	1915	American Steel & Wire Co.	Cleveland, Ohio	GE
9	300	375	2200	25	Wire Mill	Belt	1915	American Steel & Wire Co.	Cleveland, Ohio	GE
10	300	450	440	60	Wire Mill		1914	American Steel & Wire Co.	Joliet, Ill.	AC
11	300	450	440	60	Wire Mill	Geared	1914	American Steel & Wire Co.	Joliet, Ill.	AC
12	300	600	2300	60	Wire Mill	Geared	1917	American Steel & Wire Co.	Waukegan, Ill.	GE
13	325	600	2300	60	Wire Mill	Geared	1917	American Steel & Wire Co.	Waukegan, Ill.	GE
14	350	300	230	d.c.	Wire Draw Bench	Coupled	1908	Pittsburgh Steel Co.	Monessen, Pa.	CW
15	350	300	230	d.c.	Wire Draw Bench	Coupled	1908	Pittsburgh Steel Co.	Monessen, Pa.	CW
16	350	300	230	d.c.	Wire Draw Bench	Coupled	1908	Pittsburgh Steel Co.	Monessen, Pa.	CW
17	350	300	230	d.c.	Wire Draw Bench	Coupled	1911	Pittsburgh Steel Co.	Monessen, Pa.	CW
18	400	600	2200	60	Wire Rod Mill	Geared	1917	Rome Wire Co.	Rome, N. Y.	AC
19	400	600	440	60	Wire Rod Mill	Coupled	1917	Rome Wire Co.	Rome, N. Y.	AC
20	450	720	2200	60	Wire Bench Mill	Geared	1928	Gulf States Steel Co.	Alabama City, Ala.	W
21	450	720	2200	60	Wire Bench Mill	Geared	1928	Gulf States Steel Co.	Alabama City, Ala.	W
22	450	720	2200	60	Wire Bench Mill	Geared	1928	Gulf States Steel Co.	Alabama City, Ala.	W
23	500	450	440	60	Wire Mill	Geared	1916	Waclark Wire Co.	Elizabeth, N. J.	GE
24	600	600	2200	60	Wire Drawing Mill	Geared	1929	J. A. Roebling & Sons	Roebling, N. J.	GE
25	600	600	2200	60	Wire Drawing Mill	Geared	1929	J. A. Roebling & Sons	Roebling, N. J.	GE
26	750	514	2200	60	Wire Rod Mill	Geared	1917	Kokomo Steel & Wire Co.	Kokomo, Ind.	AC
27	800	450	2200	60	Wire Rod Mill	Coupled	1919	Black Steel & Wire Co.	Kansas City, Mo.	AC
28	900	163	2200	60	Wire Rod Mill	Coupled	1917	Kokomo Steel & Wire Co.	Kokomo, Ind.	AC
29	900	163	2200	60	Wire Rod Mill	Rope	1919	Black Steel & Wire Co.	Kansas City, Mo.	AC
30	1200	514	2200	60	Wire Rod Mill	Geared	1917	Kokomo Steel & Wire Co.	Kokomo, Ind.	AC
31	1300	360	2200	60	Wire Rod Mill	Coupled	1917	Kokomo Steel & Wire Co.	Kokomo, Ind.	AC
32	1500	514	2200	60	Wire Rod Mill	Coupled	1917	Kokomo Steel & Wire Co.	Kokomo, Ind.	AC

WHEEL MILLS

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1	300	450–750	230	d.c.	Wheel Mill	Geared	1913	Bethlehem Steel Co.	Johnstown, Pa.	AC
2	300	450–750	230	d.c.	Wheel Mill	Geared	1913	Bethlehem Steel Co.	Johnstown, Pa.	AC
3	500	155–500	250	d.c.	Tyre Mill	Direct	1923	McConway Torley Co.	Pittsburgh, Pa.	W
4	500	214	6600	25	Axle Mill	Geared	1909	Illinois Steel Co.	Gary, Ind.	GE
5	500	375	2200	25	Wheel Mill	Geared	1913	Bethlehem Steel Co.	Johnstown, Pa.	AC
6	700	200	240	d.c.	Pontoon Mill	Direct	1926	M. W. Kellogg	Newark, N. J.	CW
7	700	200	240	d.c.	Pontoon Mill	Direct	1926	M. W. Kellogg	Newark, N. J.	CW
8	750	130	550	d.c.	Wheel Mill	Direct	1915	Carnegie Steel Co.	McKees Rocks, Pa.	GE
9	750	160	550	d.c.	Wheel Mill	Direct	1916	Edgewater Steel Co.	Oakmont, Pa.	GE
10	750	160	550	d.c.	Wheel Mill	Direct	1916	Edgewater Steel Co.	Oakmont, Pa.	GE
11	750	160	550	d.c.	Wheel Mill	Direct	1919	Edgewater Steel Co.	Oakmont, Pa.	GE
12	750	190–375	245	d.c.	Pontoon Mill	Coupled	1927	M. W. Kellogg Co.	Jersey City, N. J.	CW
13	750	190–375	245	d.c.	Pontoon Mill	Coupled	1927	M. W. Kellogg Co.	Jersey City, N. J.	CW
14	900–720	200–160	220	d.c.	Wheel Mill	Geared	1906	Bethlehem Steel Co.	Johnstown, Pa.	GE
15	1000	137	6600	25	Wheel Mill	Geared	1916	Illinois Steel Co.	Gary, Ind.	AC
16	1000	375	2200	25	Wheel Mill	Geared	1913	Bethlehem Steel Co.	Johnstown, Pa.	AC
17	2000	375	2200	25	Wheel Mill	Geared	1916	Bethlehem Steel Co.	Johnstown, Pa.	AC

ALUMINUM, BRASS, COPPER AND NON-FERROUS MILL DRIVES

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1	300	290	2200	25	Brass Mill	Geared	1920	American Brass Co.	Buffalo, N. Y.	W
2	300	290	2200	25	Brass Mill	Geared	1920	American Brass Co.	Buffalo, N. Y.	W
3	300	290	2200	25	Brass Mill	Geared	1920	American Brass Co.	Buffalo, N. Y.	W
4	300	290	2200	25	Brass Mill	Geared	1920	American Brass Co.	Buffalo, N. Y.	W
5	300	300–600	230	d.c.	20″ x 30″ Brass Mill	Geared	1920	West Virginia Metal Products Co.	Fairmont, W. Va.	W
6	300	300–600	230	d.c.	20″ x 30″ Brass Mill	Geared	1920	West Virginia Metal Products Co.	Fairmont, W. Va.	W
7	300	300–600	230	d.c.	22″ x 36″ Brass Mill	Geared	1920	West Virginia Metal Products Co.	Farimont, W. Va.	W
8	300	300–600	230	d.c.	22″ x 36″ Brass Mill	Geared	1920	West Virginia Metal Products Co.	Fairmont, W. Va.	W
9	300	300	2200	60	26″ Cold Mill	Coupled	1921	International Nickel Co.	Huntington, W. Va.	AC
10	300–400	400–800	230	d.c.	14″-4-High Tandem Copper Mill	Geared	1927	Rome Brass & Copper Co.	Rome, N. Y.	GE
11	300	435	2200	60	24″ x 48″ Copper Mill	Geared	1920	West Virginia Metal Products Co.	Fairmont, W. Va.	W
12	300	435	2200	60	18″ Copper Mill	Geared	1920	West Virginia Metal Products Co.	Fairmont, W. Va.	W
13	300	450	440	60	Copper & Brass Rolling Mill	Geared	1927	New Haven Copper Co.	Seymour, Conn.	EM
14	300	450–1200	650	d.c.	Cold Strip Aluminum Mill	Geared	1929	U. S. Aluminum Co.	Niagara Falls, N. Y.	GE
15	300	500		60	Brass Mill	Coupled	1917	British American Metals Co.	Plainfield, N. J.	CW
16	300	514	440	60	Brass Mill	Geared	1915	Chase Metal Works	Waterbury, Conn.	GE
17	300	514	550	60	Brass Sheet Mill	Geared	1919	American Brass Company	Hastings, N. Y.	GE
18	300	514	440	60	Copper & Brass Rolling Mill	Geared	1924	Dallas Brass & Copper Co.	Chicago, Ill.	EM
19	300	514	440	50	Copper & Brass Rolling Mill	Geared	1924	Dallas Brass & Copper Co.	Chicago, Ill.	EM
20	300	514	440	60	Copper & Brass Rolling Mill	Geared	1924	Dallas Brass & Copper Co.	Chicago, Ill.	EM
21	300	514	440	50	Copper & Brass Rolling Mill	Geared	1928	Dallas Brass & Copper Co.	Chicago, Ill.	EM
22	300	585	440	60	18″ Copper (Rough.) Mill	Chain	1916	Standard Underground Cable Co.	Perth Amboy, N. J.	W
23	300	600	2200	60	Brass Mill	Geared	1915	Chase Metal Works	Waterbury, Conn.	GE
24	300	600	440	60	Brass Mill	Geared	1919	Bristol Brass Co.	Bristol, Conn.	GE
25	300	600	440	60	Brass Mill		1920	Detroit Copper & Brass Co.	Detroit, Mich.	AC
26	300	600	440	60	Copper Strip Mill	Geared	1925	Detroit Copper & Brass Co.	Detroit, Mich.	CW
27	350	250	440	25	Brass Mill	Geared	1921	Harrison Radiator Corp.	Lockport, N. Y.	GE
28	350–350	275–470	375	d.c.	Reversing Copper Mill	Geared	1920	American Brass Co.	Buffalo, N. Y.	GE
29	350–350	275–470	375	d.c.	Reversing Copper Mill	Geared	1920	American Brass Co.	Buffalo, N. Y.	GE
30	350–350	275–470	375	d.c.	Reversing Copper Mill	Geared	1920	American Brass Co.	Kenosha, Wis.	GE
31	350–350	275–470	375	d.c.	Reversing Copper Mill	Geared	1922	Taunton-New Bedf'd Copper Co.	Taunton, Mass.	GE
32	350	400	2200	60	Wire Rod Mill	Geared	1918	Taunton New Bedf'd Copper Co.	New Bedford, Mass.	AC
33	350	400	2200	60	Wire Rod Mill	Coupled	1918	Taunton New Bedf'd Copper Co.	New Bedford, Mass.	AC
34	350	400	2200	60	Wire Rod Mill	Coupled	1918	Taunton New Bedf'd Copper Co.	New Bedford, Mass.	AC
35	350	490	2200	25	Brass Mill	Geared	1920	American Brass Co.	Buffalo, N. Y.	W
36	350	490	2200	25	Brass Mill	Geared	1920	American Brass Co.	Buffalo, N. Y.	W
37	400	150–300	250	d.c.	Copper Rod Mill	Geared	1929	Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
38	400	277	2200	60	Copper Rod Mill	Direct	1927	Washburn Wire Co.	Phillipsdale, R. I.	AC
39	400	277	440	60	Chromel Mill	Direct	1928	Hoskins Mfg. Co.	Detroit, Mich.	W
40	400	300	440	60	Copper & Brass Rolling Mill	Geared	1928	Dallas Brass & Copper Co.	Chicago, Ill.	EM
41	400	300	440	60	Copper & Brass Rolling Mill	Geared	1927	Dallas Brass & Copper Co.	Chicago, Ill.	EM
42	400	300	440	60	Copper & Brass Rolling Mill	Geared	1927	Dallas Brass & Copper Co.	Chicago, Ill.	EM
43	400	300–600	250	d.c.	Copper Rod Mill	Geared	1929	Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
44	400	300–600	250	d.c.	Copper Rod Mill	Geared	1929	Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
45	400	300–600	250	d.c.	Copper Rod Mill	Geared	1929	Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
46	400	350	440	60	9″ Copper (Fin.) Mill	Direct	1916	Standard Underground Cable Co.	Perth Amboy, N. J.	W
47	400	352	2200	60	Copper Rod Mill	Geared	1923	American Brass Company	Kenosha, Wis.	W
48	400	360	2200	60	Brass Mill	Geared	1917	American Brass Co.	Waterbury, Conn.	GE
49	400	360	2200	60	Brass Mill	Geared	1917	American Brass Co.	Waterbury, Conn.	GE
50	400	360	2200	60	Brass Mill	Geared	1921	American Brass Co.	Torrington, Conn.	GE
51	400	360	2200	60	Brass Mill	Geared	1921	American Brass Co.	Torrington, Conn.	GE
52	400	400	2200	60	Copper Rod Mill	Direct	1927	Washburn Wire Co.	Phillipsdale, R. I.	AC
53	400	435	2200	60	Aluminum Mill	Geared	1918	U. S. Aluminum Co.	New Kensington, Pa.	W
54	400	435	2200	60	Aluminum Mill	Geared	1918	U. S. Aluminum Co.	New Kensington, Pa.	W
55	400	435	2200	60	Aluminum Mill	Geared	1919	U. S. Aluminum Co.	Edgewater, N. J.	W
56	400	440	2200	60	Copper Rod Mill	Geared	1923	American Brass Company	Kenosha, Wis.	W
57	400	450	2200	60	Brass Mill	Geared	1917	American Brass Company	Waterbury, Conn.	GE
58	400	450	440	60	Brass Sheet Mill	Geared	1920	Detroit Copper & Brass Co.	Detroit, Mich.	GE
59	400	450	440	60	Sheet Mill	Geared	1924	New Jersey Zinc Co.	Palmerton, Pa.	GE
60	400	450	440	60	Sheet Mill	Geared	1924	New Jersey Zinc Co.	Palmerton, Pa.	GE
61	400	450–900	250	d.c.	Copper Rod Mill	Geared	1929	Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
62	*400	450	4600	60	Copper Mill	Geared	1929	Chase Co., Inc.	Waterbury, Conn.	GE
63	*400	450	4600	60	Copper Mill	Geared	1929	Chase Co., Inc.	Waterbury, Conn.	GE
64	*400	450	4600	60	Copper Mill	Geared	1929	Chase Co., Inc.	Waterbury, Conn.	GE
65	*400	450	4600	60	Copper Mill	Geared	1929	Chase Co., Inc.	Waterbury, Conn.	GE
66	*400	450	4600	60	Copper Mill	Geared	1929	Chase Co., Inc.	Waterbury, Conn.	GE
67	*400	450	4600	60	Copper Mill	Geared	1929	Chase Co., Inc.	Waterbury, Conn.	GE
68	*400	450	4600	60	Copper Mill	Geared	1929	Chase Co., Inc.	Waterbury, Conn.	GE
69	400	514	2200	60	Brass Tubes Mill	Geared	1915	American Brass Co.	Waterbury, Conn.	GE
70	400	514	2200	60	Brass Tubes Mill	Geared	1915	American Brass Co.	Waterbury, Conn.	GE
71	400	514	440	60	16″ Copper Bar Mill	Geared	1916	Waclark Wire Co.	Elizabeth, N. J.	GE
72	400	514	2200	60	Brass Mill	Geared	1922	Western Cartridge Co.	East Alton, Ill.	GE
73	400	514	2200	60	20″ Flat Mill	Geared	1915	American Brass Company	Kenosha, Wis.	AC
74	400	514	2200	60	24″ Roughing Mill	Geared	1915	American Brass Company	Kenosha, Wis.	AC
75	400	514	2200	60	18″ Bar Mill	Geared	1915	American Brass Company	Kenosha, Wis.	AC
76	400	575	440	60	Sheet Copper Rolling Mill	Geared	1923	American Metal Products Co.	Milwaukee, Wis.	W
77	400	600	440	60	Brass Mill	Geared	1917	Rome Brass & Copper Co.	Rome, N. Y.	GE
78	400	600	2200	60	Brass Mill	Geared	1921	American Brass Co.	Torrington, Conn.	GE
79	400	600	2200	60	Zinc Mill	Geared	1922	Ball Bros. Glass Co.	Muncie, Ind.	GE
80	400	600	2200	60	Brass Rolling Mill	Geared	1925	American Brass Co.	Torrington, Conn.	GE
81	400	600	2300	60	Brass Mill	Geared	1928	Chase Companies, Inc.	Waterville, Conn.	GE
82	400	600	2300	60	Brass Mill	Geared	1928	Chase Companies, Inc.	Waterville, Conn.	GE
83	400	600	440	60	Copper Mill	Geared	1929	Rome Brass & Copper Co.	Rome, N. Y.	GE
84	400	600	440	60	Copper Mill	Geared	1929	Rome Brass & Copper Co.	Rome, N. Y.	GE
85	400	720	2200	60	Copper Mill	Geared	1920	Rome Wire Co.	Rome, N. Y.	GE
86	400	720	550	60	Copper Mill	Geared	1920	Phillips Wire Co.	Pawtucket, R. I.	GE
87	400	720	4600	60	Copper Mills	Geared	1927	Higgins Brass & Mfg. Co.	Detroit, Mich.	GE
88	400	720	4600	60	Copper Mills	Geared	1927	Higgins Brass & Mfg. Co.	Detroit, Mich.	GE
89	400–200	800–400	230	d.c.	Copper Sheet Mill	Geared	1925	Rome Brass & Copper Co.	Rome, N. Y.	GE
90	400	900	550	60	Brass Mill	Geared	1920	American Brass Company	Ansonia, Conn.	GE
91	400	900	550	60	Brass Mill	Geared	1920	American Brass Company	Ansonia, Conn.	GE
92	400	900	550	60	Brass Mill	Geared	1920	American Brass Company	Ansonia, Conn.	GE
93	400	900	550	60	Brass Mill	Geared	1920	American Brass Company	Ansonia, Conn.	GE
94	400	900	550	60	Brass Mill	Geared	1921	American Brass Company	Ansonia, Conn.	GE
95	450	200–400	230	d.c.	Zinc Sheet Mill 26″ x 72″	Geared	1924	Illinois Zinc Co.	Peru, Illinois	W
96	450	500	440	60	Brass Mill	Geared	1918	Michigan Copper & Brass Co.	Detroit, Mich.	W
97	450	550–750	230	d.c.	Zinc Rolls	Coupled	1924	Mattheisen Hegeler Zinc Co.	LaSalle, Ill.	CW
98	450	550–750	230	d.c.	Zinc Strip Mills	Geared	1925	Mattheisen & Hegeler Zinc Co.	LaSalle, Ill.	CW
99	450	600	550	60	Copper Rod Mill	Geared	1920	Phillips Wire Co.	Pawtucket, R. I.	GE

ALUMINUM, BRASS, COPPER AND NON-FERROUS MILL DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	W Name of Plant	Location	Mfgd. By
100	450	870	440	60	Copper Clad Mill	Geared	1915	Duplex Metal Co.	Philadelphia, Pa.	W
101	500	120	2200	60	Copper Rod Mill	Direct	1927	Washburn Wire Co.	Phillipsdale, R. I.	AC
102	500	0–200	500	d.c.	78" Rev. Brass Plate Mill	Geared	1920	West Virginia Metal Products Co.	Fairmont, W. Va.	W
103	500	220–400	550	d.c.	Brass Mill	Geared	1913	Scoville Manufacturing Co.	Waterbury, Conn.	W
104	500	220–400	550	d.c.	Brass Mill	Geared	1913	Scoville Manufacturing Co.	Waterbury, Conn.	W
105	500	220–400	550	d.c.	Brass Mill	Geared	1913	Scoville Manufacturing Co.	Waterbury, Conn.	W
106	500	220–400	550	d.c.	Brass Mill	Geared	1913	Scoville Manufacturing Co.	Waterbury, Conn.	W
107	500	220–400	500	d.c.	Brass Mill	Geared	1913	Scoville Manufacturing Co.	Waterbury, Conn.	W
108	500	290	2200	25	Brass Mill	Geared	1920	American Brass Company	Buffalo, N. Y.	W
109	*500	327	2200	60	Copper Mill	Geared	1929	Apollo Steel Co.	Apollo, Pa.	GE
110	500	360	2200	60	Tube Mill	Geared	1915	American Brass Company	Waterbury, Conn.	GE
111	500	360	2200	60	Copper Mill	Geared	1917	Anaconda Copper Mining Co.	Black Eagle, Mont.	GE
112	500	360	440	60	Brass Mill	Direct	1923	Rome Brass & Copper Co.	Rome, N. Y.	GE
113	500	360	440	60	Brass Mill	Direct	1923	Rome Brass & Copper Co.	Rome, N. Y.	GE
114	500	360–612	600	d.c.	Reversing Hot Mill	Geared	1925	Michigan Copper & Brass Co.	Detroit, Mich.	GE
115	500	365	440	25	Copper Rolling Mill	Rope	1922	Baltimore Cop. Smelt. & Roll. Co.	Baltimore, Md.	W
116	500	368	2200	25	Brass Mill	Geared	1920	American Brass Company	Buffalo, N. Y.	W
117	500	375	2300	25		Geared	1925	Buffalo Copper & Brass Co.	Buffalo, N. Y.	AC
118	500	375	2200	25	10" Aluminum Rod Mill	Geared	1926	U. S. Aluminum Co.	Massena, N. Y.	GE
119	500	375–750	440	25	Copper Sheet Mill	Geared	1928	American Smelting & Refining Co.	Baltimore, Md.	GE
120	500	400–800	230	d.c.	14" Tandem Copper Mill	Geared	1927	Rome Brass & Copper Co.	Rome, N. Y.	GE
121	500	400–800	230	d.c.	14" Tandem Copper Mill	Geared	1927	Rome Brass & Copper Co.	Rome, N. Y.	GE
122	500	440	2200	60	Copper Rod Mill	Geared	1923	American Brass Company	Kenosha, Wis.	W
123	500	450	2200	60	Brass Mill	Geared	1915	Scoville Manufacturing Co.	Waterbury, Conn.	GE
124	500	450	2200	60	Brass Mill	Geared	1915	Scoville Manufacturing Co.	Waterbury, Conn.	GE
125	500	450	2200	60	Brass Mill	Geared	1915	Scoville Manufacturing Co.	Waterbury, Conn.	GE
126	500	450	2200	60	Brass Mill	Geared	1915	Chase Metal Works	Waterbury, Conn.	GE
127	500	450	440	60	20" Copper Mill	Geared	1916	Waclark Wire Co.	Elizabeth, N. J.	GE
128	500	450	2200	60	Copper Mill	Geared	1917	Anaconda Copper Mining Co.	Black Eagle, Mont.	GE
129	500	450	2200	60	Copper Mill	Geared	1917	Anaconda Copper Mining Co.	Black Eagle, Mont.	GE
130	500	450	2200	60	Brass Mill	Geared	1917	American Brass Company	Waterbury, Conn.	GE
131	500	450	2200	60	Brass Mill	Geared	1917	American Brass Company	Waterbury, Conn.	GE
132	500	450	440	60	Brass Sheet Mill	Geared	1920	Detroit Copper & Brass Co.	Detroit, Mich.	GE
133	500	450	2200	60	Brass Mill	Geared	1921	American Brass Company	Torrington, Conn.	GE
134	500	450	2200	60	Brass Mill	Geared	1921	American Brass Company	Torrington, Conn.	GE
135	500	450	2200	60	14" Roughing Mill	Geared	1920	International Nickel Co.	Huntington, W. Va.	AC
136	500	450	2200	60	9" Finishing Mill	Geared	1920	International Nickel Co.	Huntington, W. Va.	AC
137	500	450	440	60	20" Copper Mill	Coupled	1918	Waclark Wire Company	Bayway, N. J.	CW
138	500	450	2200	60	Copper Mill	Direct	1925	Anaconda Copper Mining Co.	Black Eagle, Mont.	GE
139	500	450	2300	60	Brass Mill	Geared	1928	Chase Companies, Inc.	Waterville, Conn.	GE
140	500	450–900	250	d.c.	Copper Rod Mill	Geared	1929	Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
141	500	450–900	250	d.c.	Copper Rod Mill	Geared	1929	Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
142	500	500	2200	25	Aluminum Mill	Geared	1928	U. S. Aluminum Co.	Massena, N. Y.	GE
143	500	500	2200	25	Experimental Alum.	Geared	1925	U. S. Aluminnm Co.	Massena, N. Y.	GE
144	500	514	550	60	18" Copper Mill	Geared	1919	American Brass Co.	Hastings, N. Y.	GE
145	500	514	2200	60	Brass Mill	Geared	1922	Western Cartridge Co.	East Alton, Ill.	GE
146	500	575	2200	60	Copper Rod Mill	Geared	1923	American Brass Company	Kenosha, Wis.	W
147	500	600	2200	60	Brass Mill	Geared	1917	American Brass Company	Waterbury, Conn.	GE
148	500	600	2200	60	Brass Mill	Geared	1917	American Brass Company	Waterbury, Conn.	GE
149	500	600	2200	60	Brass Mill	Geared	1917	American Brass Company	Torrington, Conn.	GE
150	500	600	2200	60	Copper Rod Mill	Geared	1922	E. F. Phillips Electrical Works, Ltd.	Montreal, Que.	W
151	500	600	2200	60	Copper Rolling Mill	Geared	1923	American Brass Company	Torrington, Conn.	GE
152	500	600	440	60	Aluminum Mill	Geared	1922	Aluminum Goods Mfg. Co.	Manitowoc, Wis.	GE
153	600	90	440	60	Brass & Nickel Silver Rolling Mill	Direct	1928	Waterbury Rolling Mills	Waterbury, Conn.	EM
154	600	300	440	25	Tandem Plate Mill	Rope	1920	Baltimore Copper S. & R. Co.	Baltimore, Md.	AC
155	600	300	440	25	Tandem Plate Mill	Rope	1920	Baltimore Copper S. & R. Co.	Baltimore, Md.	AC
156	600	300	550	60	Copper Rod Mill	Direct	1926	American Brass Co.	Ansonia, Conn.	GE
157	600	360–400	500	d.c.	Aluminum Mill	Geared	1919	U. S. Aluminum Co.	Marysville, Tenn.	W
158	600	360–440	500	d.c.	Aluminum Mill	Geared	1919	U. S. Aluminum Co.	Marysville, Tenn.	W
159	600	360–440	500	d.c.	Aluminum Mill	Geared	1919	U. S. Aluminum Co.	Marysville, Tenn.	W
160	600	360	440	60	Copper Mills	Geared	1923	Am. Insulated Wire & Cable Co.	Chicago, Ill.	GE
161	600	360	550	60	Copper Rod Mill	Direct	1926	American Brass Co.	Ansonia, Conn.	GE
162	600	450	2200	60	Aluminum Strip Mill	Geared	1914	Cleveland Metal Products Co.	Cleveland, Ohio	GE
163	*600	450	4600	60	Copper Mill	Geared	1929	Chase Co., Inc.	Waterbury, Conn.	GE
164	*600	450	4600	60	Copper Mill	Geared	1929	Chase Co., Inc.	Waterbury, Conn.	GE
165	*600	450	4600	60	Copper Mill	Geared	1929	Chase Co., Inc.	Waterbury, Conn.	GE
166	600	500	575	25	Brass Sheet Mill	Geared	1920	Baltimore Tube Co.	Baltimore, Md.	GE
167	600	500	575	25	Brass Sheet Mill	Geared	1920	Baltimore Tube Co.	Baltimore, Md.	GE
168	600	514	2200	60	Brass Mill	Geared	1922	Western Cartridge Co.	East Alton, Ill.	GE
169	600	514	440	60	Aluminum Mill	Geared	1922	Aluminum Goods Mfg. Co.	Manitowoc, Wis.	GE
170	600	600	4000	60	Brass Mill	Geared	1919	Bristol Brass Co.	Bristol, Conn.	GE
171	600	600	2200	60	Copper Mill	Geared	1920	American Brass Co.	Waterbury, Conn.	GE
172	600	600	2200	60	Brass Mill	Geared	1921	American Brass Company	Waterbury, Conn.	GE
173	600	600	550	60	Copper Rod Mill	Geared	1925	Phillips Wire Co.	Pawtucket, R. I.	GE
174	*600	720	4600	60	4-High Mill	Geared	1929	Michigan Brass & Copper Co.	Detroit, Mich.	GE
175	*600	720	4600	60	4-High Mill	Geared	1929	Michigan Brass & Copper Co.	Detroit, Mich.	GE
176	600	900	440	60	Copper Rod Mill	Geared	1920	Western Electric Co.	Hawthorne, Ill.	GE
177	600	900	550	60	Brass Mill	Geared	1920	American Brass Company	Ansonia, Conn.	GE
178	600	900	440	60	Copper Mill	Geared	1923	Am. Insulated Wire & Cable Co.	Chicago, Ill.	GE
179	700	360	440	60	Brass Mill	Chain		Detroit Copper & Brass Co.	Detroit, Mich.	AC
180	700	585	2200	60	Copper Rod Mill	Geared	1923	Eugene F. Phillips Elec.Works,Ltd	Montreal, Que.	W
181	700	735	440	25	Copper Rolling Mill	Geared	1924	Baltimore Cop. Smelt. & Roll. Co.	Baltimore, Md.	W
182	700	735	440	25	Copper Rolling Mill	Geared	1924	Baltimore Cop. Smelt. & Roll. Co.	Baltimore, Md.	W
183	700	735	440	25	Copper Rolling Mill	Geared	1924	Baltimore Cop. Smelt. & Roll. Co.	Baltimore, Md.	W
184	750	353	4600	60	Brass Mill	Geared	1924	Scoville Manufacturing Co.	Waterbury, Conn.	W
185	750	375	2200	25	10" Aluminum Rod Mill	Geared	1926	U. S. Aluminum Co.	Massena, N. Y.	GE
186	750	505	2200	60	Copper Mill	Geared	1929	National Elec. Products Co.	Bayway, N. J.	W
187	750	514	550	60	10" and 9" Copper Mills	Geared	1919	American Brass Company	Hastings, N. Y.	GE
188	750	514	550	60	10" and 9" Copper Mills	Geared	1919	American Brass Company	Hastings, N. Y.	GE
189	750	600	4000	60	Brass Mill	Geared	1919	Bristol Brass Co.	Bristol, Conn.	GE
190	750	720	2200	60	Zinc Rolling Mill	Geared	1923	American Zinc Products Co.	Greencastle, Ind.	GE
191	750	720	550	60	Brass Rolling Mill	Geared	1925	American Brass Co.	Ansonia, Conn.	GE
192	800	350	2200	60	Aluminum Mill	Geared	1915	U. S. Aluminum Co.	Edgewater, N. J.	W
193	800	353	440	50	8" Copper Rod Mill	Direct	1923	Standard Underground Cable Co.	St. Louis, Mo.	W
194	800	360–440	500	d.c.	Aluminum Mill	Geared	1919	U. S. Aluminum Co.	Marysville, Tenn.	W
195	800	360–440	500	d.c.	Aluminum Mill	Geared	1919	U. S. Aluminum Co.	Marysville, Tenn.	W
196	800	370	650	d.c.	Aluminum Mill	Direct	1917	U. S. Aluminum Co.	Niagara Falls, N. Y.	W
197	800	370–400	650	d.c.	Aluminum Mill	Direct	1919	U. S. Aluminum Co.	Niagara Falls, N. Y.	W
198	800	443	2200	60	Roughing Mill	Coupled	1920	International Nickel Co.	Huntington, W. Va.	AC
199	800	443	2200	60	Copper Mill	Geared	1928	American Brass Co.	Kenosha, Wis.	AC
200	800	450	2200	60	14" Merchant Mill	Geared	1920	International Nickel Co.	Huntington, W. Va.	AC
201	800–400	450–225	2200	60	Copper Mill	Direct	1925	Anaconda Copper Mining Co.	Mont.	GE
202	800	720	4600	60	Rolling Mill	Geared	1925	Michigan Copper & Brass Co.	Detroit, Mich.	AC
203	800	720	4600	60	Rolling Mill	Geared	1925	Michigan Copper & Brass Co.	Detroit, Mich.	AC
204	800	720	4600	60	Rolling Mill	Geared	1925	Michigan Copper & Brass Co.	Detroit, Mich.	AC
205	800	720	4600	60	Rolling Mill	Geared	1925	Michigan Copper & Brass Co.	Detroit, Mich.	AC
206	800	720	4600	60	Rolling Mill	Geared	1925	Michigan Copper & Brass Co.	Detroit, Mich.	AC
207	*800	720	2300	60	Copper Rod Mill	Geared	1929	Standard Underground Cable Co.	Perth Amboy, N. J.	W

ALUMINUM, BRASS, COPPER AND NON-FERROUS MILL DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
208	800	870	2200	60	Copper Rod Mill	Geared	1923	American Brass Company	Kenosha, Wis.	W
209	800	870	3200	60	Copper Rod Mill	Geared	1923	American Brass Company	Kenosha, Wis.	W
210	800	900	440	60	Copper Rod Mill	Geared	1920	Western Electric Co.	Hawthorne, Ill.	GE
211	900	900	440	60	Copper Rod Mill	Geared	1920	Western Electric Co.	Hawthorne, Ill.	GE
212	1000	40–60	270	d.c.	28″ Rev. Copper Mill	Direct	1927	Rome Brass & Copper Co.	Rome, N. Y.	GE
213	*1000	225	2300	60	Copper Rod Mill	Direct	1929	Standard Underground Cable Co.	Perth Amboy, N. J.	W
214	*1000	360	2300	60	Copper Rod Mill	Direct	1929	Standard Underground Cable Co.	Perth Amboy, N. J.	W
215	1000	300	2200	25	Aluminum Rod Mill	Geared	1922	U. S. Aluminum Co.	Massena, N. Y.	GE
216	1000	450	2200	60	20″ Merchant Mill	Geared	1920	International Nickel Co.	Huntington, W. Va.	AC
217	1000	600	2300	60	Copper Mill	Geared	1925	American Copper Products Co.	Elizabeth, N. J.	GE
218	*1000	514	4000	60	Brass Mill	Geared	1929	Riverside Metal Co.	Riverside, N. J.	GE
219	1000	725	440	25	Copper Rod Mill	Geared	1929	Safety Cable Co.	Baltimore, Md.	W
220	1200	360	2200	60	24″ Bar Mill	Geared	1920	International Nickel Co.	Huntington, W. Va.	AC
221	1200	360	2200	60	30″ Sheet Mill	Geared	1920	International Nickel Co.	Huntington, W. Va.	AC
222	1200	375	440	25	Brass & Copper Mill	Geared	1928	American Smelting & Refining Co.	Baltimore, Md.	GE
223	1200	400	650	d.c.	Aluminum Plate Mill	Geared	1915	Aluminum Company of America	Niagara Falls, N. Y.	GE
224	1350	600	2300	60	Copper Mill	Geared	1918	American Brass Company	Waterbury, Conn.	GE
225	2000	230–460	600	d.c.	Structural Mill	Geared	1929	U. S. Aluminum Co.	Massena, N. Y.	W

BAR AND BILLET MILL DRIVES

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd By
1	300	250	440	25	Cogging Mill	Geared	1910	Simonds Mfg. Co.	Lockport, N. Y.	GE
2	300	375	2200	25	Bar Mill	Coupled		Bethlehem Steel Co.	Johnstown, Pa.	AC
3	300	375	2200	25	10″ Bar Mill	Geared	1919	Hammond Steel Co.	Solvay, N. Y.	GE
4	300	400	550	60	14″ Bar Mill	Geared	1926	Ludlum Steel Co.	Watervliet, N. Y.	GE
5	300	450	230	d.c.	Bar Mill	Geared	1916	Carbon Steel Co.	Pittsburgh, Pa.	W
6	300	450	550	60	Bar Mill	Coupled	1921	Nat'l Conduit & Cable Co.	Hast. on Hudson,N.Y	AC
7	300	514	2200	60	Bar Mill	Geared	1915	C. G. Hussey	Pittsburgh, Pa.	AC
8	300-300-150	600-400-300	440	60	Bar Mill	Chain	1916	Vulcan Crucible Steel Co.	Aliquippa, Pa.	GE
9	300	600	2300	60	12″ Billet Mill	Geared	1916	Tenn. Coal, Iron & R. R. Co.	Bessemer, Ala.	GE
10	300	720	440	60	Bar Mill	Geared	1920	Hoskins Mfg. Co.,	Detroit, Mich.	AC
11	300	750	2200	25	10″ Bar Mill	Geared	1923	Bethlehem Steel Co.	Lebanon, Pa.	GE
12	335	360	2200	60	Bar Mill	Geared	1915	Heppenstall Forge & Knife Co.	Pittsburgh, Pa.	GE
13	350	125	6600	25	12″ Bar Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
14	350-350	360-240	440	60	Bar Mill	Coupled	1921	Simmons Mfg. Co.	Kenosha, Wis.	AC
15	350	600	2200	60	Bar Mill	Belted	1920	Joslyn Mfg. Co.	Chicago, Ill.	AC
16	400-400	107-64	2200	25	16″ Bar Mill	Direct	1914	Bethlehem Steel Co.	Lebanon, Pa.	GE
17	400	400	400	60	Bar Mill	Chain	1918	Latrobe Steel Co.	Latrobe, Pa.	AC
18	400	440	4000	60	Billet Mill	Coupled	1923	Bryden Neverslip Co.	Catasauqua, Pa.	AC
19	400	450	2200	60	12″ Bar Mill	Geared	1924	Atchison, Topeka & Santa Fe Ry.	Chicago, Ill.	AC
20	400	450	2200	60	9″ Bar Mill	Geared	1924	Atchison, Topeka & Santa Fe Ry.	Chicago, Ill.	AC
21	400	514	2200	60	Bar Mill	Geared	1919	Judson Mfg. Co.	Oakland, Calif.	AC
22	400-225	600-300	550	40	Bar Mill	Geared	1909	Ludlum Steel Co.	Watervliet, N. Y.	GE
23	400	705	2200	60	16″ Cogging Mill	Geared	1923	Crucible Steel Co. of America	Park Works, Pgh.,Pa	W
24	400	720-450	2200	60	Bar Mill	Geared	1917	Cyclops Steel Co.	Titusville, Pa.	AC
25	400-265	875-585	2200	60	Bar Mill	Geared	1913	Old Dominion Iron & Nail Co.	Richmond, Va.	W
26	400	900	2200	60	Bar and Billet Mill	Geared	1925	Crucible Steel Co.	Pittsburgh, Pa.	W
27	450	125	6600	25	12″ Bar Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
28	500	175–350	600	d.c.	12″ Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
29	500	175–350	600	d.c.	12″ Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
30	500	175–350	600	d.c.	12″ Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
31	500	250	440	25	10″ Bar Mill	Geared	1917	Simonds Mfg. Co.	Lockport, N. Y.	GE
32	500	300	2200	60	Bar Mill	Coupled	1920	Ft. Wayne Rolling Mill Co.	Ft. Wayne, Ind.	AC
33	500	360	2200	60	16″ Bar Mill	Geared	1915	Tenn. Coal, Iron & R. R. Co.	Bessemer, Ala.	GE
34	500	440	2200	60	Bar Mill	Geared	1924	Universal Steel Co.	Bridgeville, Pa.	AC
35	500	440	4000	60	Bar Mill	Coupled	1923	Bryden Neverslip Co	Catasauqua, Pa.	AC
36	500	440	440	60	16″ Bar Mill	Chain	1928	Phoenix Horseshoe Co.	Joliet, Ill.	W
37	500	450	440	60	Bar Mill	Geared	1910	Chase Rolling Mills Co.	Waterbury, Conn.	GE
38	500	450	440	60	Bar Mill	Geared	1910	Chase Rolling Mills Co.	Waterbury, Conn.	GE
39	500	450	440	60	16″ Bar Mill	Geared	1914	Carbon Steel Co.	Pittsburgh, Pa.	GE
40	500	450	2200	60	Billet Mill	Geared	1915	International High Speed Steel Co	Rockaway, N. J.	GE
41	500	450	2200	60	Bar Mill	Geared	1925	Indianapolis Steel Products Co.	Indianapolis, Ind.	AC
42	500	500	2200	25	16″ Bar Mill	Geared	1919	Hammond Steel Co.	Solvay, N. Y.	GE
43	500	514	2200	60	Bar Mill	Rope	1917	Henry Disston & Son	Philadelphia, Pa.	AC
44	500	514	2200	60	Bar Mill	Geared	1920	Metals Production Equip. Co.	Springfield, Mass.	AC
45	500	514	2200	60	Bar Mill	Geared	1920	Metals Production Equip. Co.	Springfield, Mass.	AC
46	500	514	2200	60	Bar Mill	Geared	1920	Metals Production Equip. Co.	Springfield, Mass.	AC
47	500	514	440	60	Bar Mill	Chain	1915	Simmons Mfg. Co.	Kenosha, Wis.	AC
48	500	514	2200	60	Bar Mill	Geared	1919	Judson Mfg. Co.	Oakland, Calif.	AC
49	500	600	2200	60	Bar Mill	Belted	1919	Joslyn Mfg. Co.	Chicago, Ill.	AC
50	600	171	440	40	Bar Mill	Geared	1910	Ludlum Steel Co.	Watervliet, N. Y.	GE
51	600	300	2200	25	Muck Mill	Chain	1914	St. Louis Screw Co.	St. Louis, Mo.	AC
52	600-600	300-214	2200	25	Bar Mill	Coupled & Rope	1914 1914	St. Louis Screw Co.	St. Louis, Mo.	AC
53	600	300-214	2200	25	Bar Mill	Chain		St. Louis Screw Co.	St. Louis, Mo.	AC
54	600	300-330	250	d.c.	10″ Bar Mill	Coupled	1921	Universal Steel Company	Bridgeville, Pa.	CW
55	600	368	6600	25	18-21″ Bar (Rough.) Mill	Geared	1924	Pittsburgh Crucible Steel Co.	Midland, Pa.	GE
56	600	490	2200	25	16″ Bar (Roughing) Mill	Geared	1919	Scullin Steel Co.	St. Louis, Mo.	W
57	600	514	2200	60	18″ Bar Mill	Geared	1926	American Nickel Corp.	Hyde, Pa.	GE
58	600-300	600-300	550	60	9″ Bar Mill No. 2	Geared	1926	Ludlum Steel Co.	Watervliet, N. Y.	GE
59	700	250	2200	25	18″ Bar Mill	Rope	1911	Dilworth Porter Co.	Pittsburgh, Pa.	GE
60	700	390	2200	60	18″ Bar Mill	Geared	1922	Dilworth Porter Co.	Pittsburgh, Pa.	W
61	700	600	2200	60	14″ Bar Mill	Coupled	1921	Universal Steel Company	Bridgeville, Pa.	CW
62	700	600	440	60	10″ Bar Mill	Geared	1929	Latrobe Electric Co.	Latrobe, Pa.	GE
63	750	120–210	250	d.c.	14″ Bar Mill	Coupled	1923	Pittsburgh Crucible Steel Co.	Midland, Pa.	AC
64	750	120–210	250	d.c.	14″ Bar Mill	Coupled	1923	Pittsburgh Crucible Steel Co.	Midland, Pa.	AC
65	750-750	225–168	440	60	Bar Mill	Coupled	1921	Simmons Mfg. Co.	Kenosha, Wis.	AC
66	750	250	2200	25	Bar Mill	Geared	1914	Bethlehem Steel Co.	Johnstown, Pa.	AC
67	750	250	440	25	Bar Mill	Coupled	1920	Simonds Mfg. Co.	Lockport, N. Y.	AC
68	800	175–350	600	d.c.	12″ Alloy Bar Mill	Direct	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
69	800	175–350	600	d.c.	12″ Alloy Bar Mill	Direct	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
70	800	175–350	600	d.c.	12″ Alloy Bar Mill	Direct	1927	Illinois Steel Co.	S. Chicago, Ill.	GE
71	800	220–150	2200	25	12″ Bar (Finishing) Mill	Direct	1919	Scullin Steel Co.	St. Louis, Mo.	W
72	800	220–440	600	d.c.	12″ Alloy Bar Mill	Direct	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
73	800	220–440	600	d.c.	12″ Alloy Bar Mill	Direct	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
74	800	220–440	600	d.c.	12″ Alloy Bar Mill	Direct	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
75	800	250	2200	60	22″ Bar Mill	Rope	1915	Timken Roller Bearing Co.	Canton, Ohio	W
76	800	257	2200	60	Bar Mill	Geared	1914	Standard Seamless Tube Co.	Economy, Pa.	GE
77	800	277	2200	60	Bar Mill	Geared	1918	Pacific Coast Steel Co.	San Francisco, Calif.	AC

BAR AND BILLET MILL DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
78	800	292	2200	25	18" Tandem Billet Mill	Direct	1912	Laclede Steel Co.	Alton, Ill.	W
79	800	350	2200	60	Billet Mill	Geared	1915	Milton Manufacturing Co.	Milton, Pa.	W
80	800	514	2200	60	Bar Mill	Geared	1919	Judson Mfg. Co.	Oakland, Calif.	AC
81	800–400	360–180	550	40	Bar Mill	Geared	1926	Ludlum Steel Co.	Watervliet, N. Y.	GE
82	800–400	360–180	550	40	Bar Mill	Geared	1926	Ludlum Steel Co.	Watervliet, N. Y.	GE
83	800–400	360–180	550	60	Bar Mi	Geared	1926	Ludlum Steel Co.	Watervliet, N. Y.	GE
84	800–400	360–180	550	60	Bar Mill	Geared	1926	Ludlum Steel Co.	Watervliet, N. Y.	GE
85	800	730–365	2200	50	22" Bar Mill	Geared	1916	Columbia Steel Co.	Los Angeles, Cal.	W
86	800	880–490	2200	60	16" Bar Mill	Geared	1920	Knoxville Iron Co.	Knoxville, Tenn.	W
87	850	505	2200	60	24" Bar (Roughing) Mill	Geared	1919	Central Steel Co.	Massillon, Ohio	W
88	1000–400	257–128	550	60	9" Bar Mill No. 1	Geared	1926	Ludlum Steel Co.	Watervliet, N. Y.	GE
89	1000	277	2200	60	22" Bar Mill	Geared	1919	Pennsylvania Forge Co.	Philadelphia, Pa.	GE
90	1000	350–700	600	d.c.	12" Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
91	1000	292	6600	25	9" Bar Mill	Direct	1928	Bethlehem Steel Co.	Johnstown, Pa.	W
92	1000	350–700	600	d.c.	12" Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chidcago, Ill.	GE
93	1000	350–700	600	d.c.	12" Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
94	1000	350–700	600	d.c.	12" Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
95	1000	350–700	600	d.c.	12" Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
96	1000	375	2200	25	Bar Mill	Geared	1913	Bethlehem Steel Co.	Johnstown, Pa.	AC
97	1000	450	2200	60	Bar Mill	Rope	1919	Pacific Coast Steel Co.	Seattle, Wash.	AC
98	1000	710	2200	60	20" Special Bar Mill	Geared	1925	Rail Joint Company	Troy, N. Y.	W
99	1000	710	2200	60	20" Special Bar Mill	Geared	1925	Rail Joint Company	Troy, N. Y.	W
100	1200–1000–800	450–375–300	6600	25	18" Bar Mill, No. 16	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
101	1200	505	2200	60	Bar (Roughing) Mill	Geared	1922	Youngstown Steel Co.	Youngstown, Ohio	W
102	1200	514	2200	60	Bar Mill	Geared	1917	Elyria Iron & Steel Co.	Elyria, Ohio	AC
103	1200	585	2200	60	22" Billet Mill	Geared	1929	Tulsa Rolling Mill Co.	Tulsa, Okla.	W
104	1250	375	2080	25	18" Billet Mill	Geared	1918	Wickwire Spencer Steel Co.	Buffalo, N. Y.	GE
105	1250	375	2080	25	18" Billet Mill	Geared	1918	Wickwire Spencer Steel Co.	Buffalo, N. Y.	GE
106	1400	505	2200	60	14" Billet Mill	Geared	1917	Wickwire Spencer Steel Corp.	Palmer, Mass.	W
107	1500	182–162	6600	25	10" Bar Mill	Direct	1913	Carnegie Steel Co.	Duquesne, Pa.	W
108	1500	266	6400	25	Billet Mill	Geared	1916	American Steel & Wire Co.	Cleveland, Ohio	W
109	1500	270	2200	60	22" Bar and Billet Mill	Geared	1918	Central Steel Co.	Massillon, Ohio	W
110	1500	440	2200	60	22" Bar Mill	Geared	1919	Kansas Bolt & Nut Co.	Kansas City, Mo.	W
111	1500	450	2200	60	Bar Mill	Rope	1919	Pacific Coast Steel Co.	Seattle, Wash.	AC
112	1500	450	2200	60	Roughing Mill	Geared	1919	Pacific Coast Steel Co.	San Francisco, Calif.	AC
113	1500	705	2200	60	24" Bar (Finishing) Mill	Geared	1922	Youngstown Steel Co.	Youngstown, Ohio	W
114	1500	705	2200	60	22" Bar Mill	Geared	1924	Atchison, Topeka & Santa Fe Ry.		AC
115	1500	735	2200	25	Bar Mill	Geared	1923	Scullin Steel Co.	St. Louis, Mo.	AC
116	1600	150	6600	25	Bar Mill	Direct	1912	Pittsburgh Crucible Steel Co.	Pittsburgh, Pa.	GE
117	1600	257	2200	60	14" Cont. Billet Mill	Geared	1912	Atlantic Steel Co.	Atlanta, Ga.	GE
118	1650–1500–1350	413–375–337	6600	25	10" Bar Mill, No. 10	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
119	1750	70–120	600	d.c.	29" Reversing Billet Mill	Direct	1916	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
120	1800	75	6600	25	30" Billet Mill	Direct	1914	Bethlehem Steel Co.	Bethlehem, Pa.	GE
121	1800	366	2200	25	22" Billet and Struct. Mill	Geared	1919	Scullin Steel Co.	St. Louis, Mo.	W
122	1800–1800–1800	370–300–247	6600	60	Sheet Bar Mill	Geared	1920	American Rolling Mill Co.	Ashland, Ky.	GE
123	1800	475–550	575	d.c.	Bar Mill	Coupled	1929	Pittsburgh Steel Co.	Monessen, Pa.	CW
124	1850–1450– 925	120– 94– 60	6600	25	16" Hand Bar Mill	Direct	1921	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
125	2000	50–100	600	d.c.	30" Reversing Bar Mill	Direct	1919	Follansbee Brothers Co.	Toronto, Ohio	W
126	2000	214	6600	25	40" Billet Mill	Geared	1907	Illinois Steel Co.	Gary, Ind.	GE
127	2000	214	6600	25	40" Billet Mill	Geared	1907	Illinois Steel Co.	Gary, Ind.	GE
128	2000	240	2200	60	18" Sheet Bar Mill	Geared	1920	Nat. Enameling & Stamping Co.	Granite City, Ill.	GE
129	2000	250–465	240	d.c.	22" Bar Mill	Geared	1928	Timken Roller Bearing Co.	Canton, Ohio	GE
130	2000	295	2200	60	Billet Mill	Geared	1928	J. A. Roebling Sons Co.	Trenton, N. J.	W
131	2150	50–100	535	d.c.	Reversing Bar Mill	Direct	1926	Standard Seamless Tube Co.	Economy, Pa.	GE
132	2200–2000–1800	275–250–225	6600	25	10" Bar Mill, No. 15	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
133	2200	505–303	2200	50	18" Bar (Finishing) Mill	Geared	1919	Central Steel Co.	Massillon, Ohio	W
134	2400	505	2200	60	22" Bar Mill	Geared	1926	Pacific Coast Steel Co.	Seattle, Wash.	W
135	2500	55	650	d.c.	24"–18" Billet Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
136	*2500	125	6600	25	30" Slab & Billet Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
137	2500	80	2200	60	Bar Mill	Direct	1928	Interstate Iron & Steel Co.	Chicago, Ill.	AC
138	2500	150	6600	25	28" Billet Mill	Geared	1923	Pittsburgh Crucible Steel Co.	Midland, Pa.	GE
139	2500	240	2200	60	24" Sheet Bar Mill	Geared	1920	Mansfield Sheet & Tin Plate Co.	Mansfield, Ohio	GE
140	2500	295	2200	60	18" Cont. Billett Mill	Geared	1926	American Steel & Wire Co.	Worcester, Mass.	AC
141	2500	300	650	d.c.	24"–18" Billet Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
142	2500	500	2200	60	22" Bar Mill	Geared	1923	Phoenix Iron Co.	Phoenixville, Pa.	W
143	2750–2500–2250	275–250–225	6600	25	14" Bar Mill, No. 14	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
144	3000	70–150	750	d.c.	24" Bar Mill	Direct	1925	Inland Steel Co.	Indiana Harbor, Ind.	GE
145	3000	70–175	750	d.c.	24" Bar Mill	Direct	1927	Inland Steel Corp.	Ind. Harbor, Ind.	GE
146	*3000	100	11000	60	23" 3-High Billet Mill	Direct	1929	American Steel & Wire Co.	Cleveland, Ohio	GE
147	*3000	187.5	6600	25	30" Slab & Billet Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
148	3000	250	6600	25	18" Cont. Billet Mill	Geared	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
149	3000	375	2200	25	18" Billet Mill	Geared	1916	Donner Steel Co.	Buffalo, N. Y.	GE
150	3000	375	6600	25	24" Sheet Bar Mill	Geared	1922	Otis Steel Co.	Cleveland, Ohio	GE
151	3250	94	6600	25	18" Sheet Bar Mill	Direct	1916	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
152	3500	92	2200	60	18" Sheet Bar Mill	Direct	1916	Trumbull Steel Co.	Warren, Ohio	GE
153	3500	92	2200	60	21" Sheet Bar Mill	Direct	1918	Trumbull Steel Co.	Warren, Ohio	GE
154	*3500	300	6600	25	30" Slab & Billet Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
155	3500	390	2200	60	Continuous Billet Mill	Geared	1920	Steel Co. of Canada	Hamilton, Ont.	W
156	4000	83	6600	25	24" Cont. Billet Mill	Direct	1916	Bethlehem Steel Co.	Sparrows Pt., Md.	GE
157	4000	93	6600	60	18" Continuous Bar Mill	Direct	1919	Weirton Steel Co.	Weirton, W. Va.	W
158	4000	93	6600	60	21" Continuous Bar Mill	Direct	1919	Weirton Steel Co.	Weirton, W. Va.	W
159	*4000	138.5	6600	60	Bar Mill	Direct	1929	Great Lakes Steel Co.	Detroit, Mich.	W
160	4000	360	2200	60	21" Sheet Bar Mill	Geared	1917	Sharon Steel Hoop Co.	Lowellville, Ohio	GE
161	4000	450	2200	60	24" Cont. Billet Mill	Geared	1927	Carnegie Steel Co.	Farrell, Pa.	W
162	4200	93	2200	60	Continuous Bar Mill	Direct	1915	United Alloy Steel Corporation	Canton, Ohio	W
163	5000	82	2200	60	21" Cont. Bar & Billet Mill	Direct	1928	Columbia Steel Co.	Pittsburgh, Cal.	W
164	5000	82	2200	60	21" Cont. Bar & Billet Mill	Direct	1928	Columbia Steel Co.	Pittsburgh, Cal.	W
165	5000	99	13200	50	18" Billet Mill	Direct	1925	Ford Motor Company	Detroit, Mich.	W
166	*5000	300	6600	50	Bar Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	W
167	5000	450	2300	60	18" Cont. Sheet Bar & Billet Mill	Geared	1919	Wheeling Steel Corp.	Portsmouth, Ohio	GE
168	5000	514	6600	50	18" Billet Mill	Geared	1928	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
169	5000	594	6600	60	Sheet and Billet Mill	Geared	1924	Tenn. Coal, Iron & R. R. Co.	Birmingham, Ala.	GE
170	5750	94	6600	25	21" Cont. Billet Mill	Direct	1914	McKinney Steel Co.	Cleveland, Ohio	GE
171	5750	94	6600	25	18" Bar Mill	Direct	1915	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
172	5750	94	6600	25	21" Bar Mill	Direct	1921	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
173	5750	94	6600	25	18" Billet Mill	Geared	1923	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
174	5750	94	6600	25	21" Billet Mill	Geared	1923	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
175	6000	83	6600	25	32" Billet Mill	Direct	1907	Illinois Steel Co.	Gary, Ind.	GE
176	6000	83	6600	25	24" Billet Mill	Direct	1907	Illinois Steel Co.	Gary, Ind.	GE
177	6000	83	6600	25	18" Billet Mill	Direct	1907	Illinois Steel Co.	Gary, Ind.	GE
178	6000	83	6600	25	18" Sheet Bar Mill	Direct	1910	Illinois Steel Co.	Gary, Ind.	GE
179	6000	294	2200	60	Billet Mill	Geared	1927	Interstate Iron & Steel Co.	Chicago, Ill.	AC
180	6000–6000	400–317	2200	60	24"–18" Billet Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
181	6250	368	2200	25	24" Cont. Billet Mill	Geared	1922	Inland Steel Co.	Indiana Harbor, Ind.	W
182	7500	375	2200	25	19" Cont. Bar & Billet Mill	Geared	1926	Inland Steel Co.	Indiana Harbor, Ind.	W
183	9000	107	6600	25	Cont. Billet Bar Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	GE

COLD ROLL DRIVES

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1	300	300	230	d.c.	Cold Roll Mill	Geared	1914	Trumbull Steel Co.	Warren, Ohio	W
2	300	300	230	d.c.	Cold Roll Mill	Geared	1920	Alan Wood Iron & Steel Co.	Conshohocken, Pa.	W
3	300	340	2200	60	Cold Roll Mill	Geared	1921	Newton Steel Co.	Newton Falls, Ohio	W
4	300	350	2200	60	Cold Roll Mill	Geared	1915	Mansfield Sheet & Tin Plate Co.	Mansfield, Ohio	W
5	300	350	2200	60	Cold Roll Mill	Geared	1916	Wheeling Steel Corporation	Wheeling, W. Va.	W
6	300	350	2200	60	Cold Roll Mill	Geared	1916	Wheeling Steel Corporation	Portsmouth, Ohio	W
7	300	350	2200	60	Cold Roll Mill	Geared	1916	Wheeling Steel Corporation	Portsmouth, Ohio	W
8	300	350	2200	60	Cold Roll Mill	Geared	1916	Wheeling Steel Corporation	Portsmouth, Ohio	W
9	300	350	2200	60	Cold Roll Mill	Geared	1916	Wheeling Steel Corporation	Portsmouth, Ohio	W
10	300	352	2200	60	Cold Roll Mill	Direct	1923	Sharon Steel Hoop Co.	Youngstown, Ohio	W
11	300	353	2200	60	Cold Rolls	Geared	1923	Reeves Mfg. Co.	Dover, Ohio	GE
12	300	360	2200	60	Sheet Mill—Cold Rolls	Geared	1922	U. Alloy Steel Corp., Berger Div.	Canton, Ohio	GE
13	300	360	2300	60	Cold Rolls	Geared	1923	Ashtabula Steel Co.	Ashtabula, Ohio	GE
14	300	363	220	25	Cold Roll Mill	Geared	1919	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
15	300-300	400-800	230	d.c.	Cold Strip Mill	Geared	1913	Weirton Steel Co.	Weirton, W. Va.	GE
16	300-300	400-800	230	d.c.	Cold Strip Mill	Geared	1913	Weirton Steel Co.	Weirton, W. Va.	GE
17	300-300	400-800	230	d.c.	Cold Strip Mill	Geared	1913	Weirton Steel Co.	Weirton, W. Va.	GE
18	300-300	400-800	230	d.c.	Cold Strip Mill	Geared	1913	Weirton Steel Co.	Weirton, W. Va.	GE
19	300-300	400-800	230	d.c.	20x24" Cold Strip Mill	Geared	1919	Trumbull Steel Co.	Warren, Ohio	GE
20	300-300	400-800	230	d.c.	20x24" Cold Strip Mill	Geared	1919	Trumbull Steel Co.	Warren, Ohio	GE
21	300-300	400-800	230	d.c.	20x24" Cold Strip Mill	Geared	1919	Trumbull Steel Co.	Warren, Ohio	GE
22	300-300	400-800	230	d.c.	20x24" Cold Strip Mill	Geared	1919	Trumbull Steel Co.	Warren, Ohio	GE
23	300	440	2200	60	Cold Roll Mill	Geared	1924	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
24	300	440	2200	60	Cold Roll Mill	Geared	1924	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
25	300	485	2200	25	Cold Roll Mill	Direct	1916	Halcomb Steel Co.	Syracuse, N. Y.	W
26	300	514	550	60	14" Cold Strip Mill	Geared	1922	Wallingford Steel Co.	Wallingford, Conn.	GE
27	300	575	2200	60	Cold Roll Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
28	300	575	2200	60	Cold Roll Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
29	300	575	2200	60	Cold Roll Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
30	300	575	2200	60	Cold Roll Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
31	300	600	2200	60	Cold Sheet Mill Rolls	Geared	1923	Falcon Steel Co.	Niles, Ohio	GE
32	300	600	2200	60	Cold Sheet	Geared	1929	Empire Steel Co.	Niles, Ohio	GE
33	300	600	220	60	Cold Sheet	Geared	1929	American Rolling Mill Co.	Butler, Pa.	GE
34	300	600	220	60	Cold Sheet	Geared	1929	American Rolling Mill Co.	Butler, Pa.	GE
35	300	600	220	60	Cold Sheet	Geared	1929	American Rolling Mill Co.	Butler, Pa.	GE
36	320	400-800	230	d.c.	Cold Strip Drive	Geared	1926	International Nickle Co.	Huntington, W. Va.	AC
37	350	145	2200	60	Cold Roll Mill	Rope	1912	Massillon Rolling Mill Co.	Massillon, Ohio	W
38	350	345	440	60	Cold Roll Mill	Geared	1910	Oliver Iron & Steel Co.	Wilson, Pa.	W
39	350	360	2200	60	Sheet Mill—Cold Rolls	Geared	1919	Falcon Steel Co.	Niles, Ohio	GE
40	375	430-860	230	d.c.	20" Cold Roll Mill	Geared	1922	Otis Steel Co.	Cleveland, Ohio	W
41	375	430-860	230	d.c.	20" Cold Roll Mill	Geared	1922	Otis Steel Co.	Cleveland, Ohio	W
42	375	430-860	230	d.c.	20" Cold Roll Mill	Geared	1922	Otis Steel Co.	Cleveland, Ohio	W
43	375	430-860	230	d.c.	20" Cold Roll Mill	Geared	1922	Otis Steel Co.	Cleveland, Ohio	W
44	375	430-860	230	d.c.	20" Cold Roll Mill	Geared	1922	Otis Steel Co.	Cleveland, Ohio	W
45	375	430-860	230	d.c.	Cold Strip Mill	Geared	1925	Otis Steel Co.	Cleveland, Ohio	GE
46	375	430-860	230	d.c.	Cold Strip Mill	Geared	1925	Otis Steel Co.	Cleveland, Ohio	GE
47	400	290	2200	60	Cold Roll Mill	Geared	1916	Youngstown Sheet & Tube Co.	Warren, Ohio	W
48	400	290	2200	60	Cold Roll Mill	Geared	1917	Liberty Steel Co.	Warren, Ohio	W
49	400	350	2200	60	Cold Roll Mill	Geared	1928	Newton Steel Co.	Newton Falls, Ohio	W
50	400	350	2200	60	Cold Roll Mill	Geared	1928	Newton Steel Co.	Newton Falls, Ohio	W
51	400	350	2200	60	Cold Roll Mill	Geared	1928	Newton Steel Co.	Newton Falls, Ohio	W
52	400	360	2200	60	Sheet Mill, Cold Rolls	Geared	1916	Mahoning Valley Steel Co.	Niles, Ohio	GE
53	400	360	2200	60	Sheet Mill, Cold Rolls	Geared	1916	Mahoning Valley Steel Co.	Niles, Ohio	GE
54	400	360	2200	60	Cold Roll Sheet Mill	Geared	1918	Reeves Mfg. Co.	Canal Dover, Ohio	GE
55	400	360	440	60	Cold Strip Mill	Geared	1921	Am. Tube and Stamping Co.	Bridgeport, Conn.	GE
56	400	400-800	230	d.c.	Cold Strip Mill	Geared	1926	Trumbull Steel Co.	Warren, Ohio	GE
57	400	400-800	230	d.c.	Cold Strip Mill	Geared	1927	Trumbull Steel Co.	Warren, Ohio	GE
58	400	400-800	230	d.c.	Cold Strip Mill	Geared	1927	Trumbull Steel Co.	Warren, Ohio	GE
59	400	400-800	230	d.c.	Cold Strip Mill	Geared	1927	Trumbull Steel Co.	Warren, Ohio	GE
60	400	400-800	230	d.c.	Cold Strip Mill	Geared	1927	Central Alloy Steel Co.	Massillon, Ohio	GE
61	400	400-800	230	d.c.	Cold Mill	Geared	1927	American Sheet & Tin Plate Co.	McKeesport, Pa.	GE
62	400	400-1200	230	d.c.	Cold Roll	Geared	1929	American Sheet & Tinplate	Farrel, Pa.	AC
63	400	400-800	230	d.c.	Cold Strip	Geared	1929	Crucible Steel Co.—	Pittsburgh, Pa.	W
64	400	500-1000	600	d.c.	Cold Strip Mill	Geared	1926	Forged Steel Wheel Co.	Butler, Pa.	AC
65	400	500-1000	600	d.c.	Cold Strip Mill	Geared	1926	Forged Steel Wheel Co.	Butler, Pa.	AC
66	400	500-1000	600	d.c.	Cold Strip Mill	Geared	1926	Forged Steel Wheel Co.	Butler, Pa.	AC
67	400	500-1000	600	d.c.	Cold Strip Mill	Geared	1926	Forged Steel Wheel Co.	Butler, Pa.	AC
68	400	500-1000	600	d.c.	Cold Sheet Mill	Geared	1929	American Rolling Mills	Middletown, Ohio	W
69	400	500-1000	600	d.c.	Cold Strip Mill	Geared	1929	American Rolling Mills	Butler, Pa.	W
70	400	500-1000	600	d.c.	Cold Strip Mill	Geared	1929	American Rolling Mills	Butler, Pa.	W
71	400	500-1000	600	d.c.	Cold Strip Mill	Geared	1929	American Rolling Mills	Butler, Pa.	W
72	400	500-1000	600	d.c.	Cold Strip Mill	Geared	1929	American Rolling Mills	Butler, Pa.	W
73	400	514	2200	60	Cold Mill	Geared	1927	American Rolling Mill Co.	Zanesville, Ohio	W
74	400	575	2200	60	Cold Roll Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
75	400	575	2200	60	Cold Roll Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
76	400	575	2200	60	Cold Roll Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
77	400	575	2200	60	Cold Roll Mill	Geared	1922	American Rolling Mill Co.	Ashland, Ky.	W
78	450	375	440	25	Cold Roll Mill	Geared	1925	Seneca Iron & Steel Co.	Blasdell, N. Y.	CW
79	450	514	550	60	14" Cold Strip MillP	Geared	1922	Wallingford Steel Co.	Wallingford, Conn.	GE
80	500	250	6600	25	Sheet Mill Cold Rolls	Geared	1919	Bethlehem Steel Co.	Sparrows Point, Md.	GE
81	500	240	2200	60	Cold Roll Mill	Geared	1928	Columbia Steel Corp.	Pittsburgh, Cal.	W
82	500	250-750	250	d.c.	Cold Strip Mill	Geared	1929	Wheeling Steel Corporation	Steubenville, Ohio	GE
83	500	250-750	250	d.c.	Cold Strip Mill	Geared	1929	Wheeling Steel Corporation	Steubenville, Ohio	GE
84	500	250-750	250	d.c.	Cold Strip Mill	Geared	1929	Wheeling Steel Corporation	Steubenville, Ohio	GE
85	500	250-750	250	d.c.	Cold Strip Mill	Geared	1929	Wheeling Steel Corporation	Steubenville, Ohio	GE
86	500	250-750	250	d.c.	Cold Strip Mill	Geared	1929	Wheeling Steel Corporation	Steubenville, Ohio	GE
87	500	250-750	250	d.c.	Cold Strip Mill	Geared	1929	Wheeling Steel Corporation	Steubenville, Ohio	GE
88	500	350	2200	60	Cold Roll Mill	Geared	1916	Mansfield Sheet & Tin Plate Co.	Mansfield, Ohio	W
89	500	350	440	60	Cold Roll Mill	Geared	1916	Andrews Steel Co.	Newport, Ky.	W
90	500	360	2200	60	Sheet Mill, Cold Rolls	Geared	1920	Central Steel Co.	Massillon, Ohio	GE
91	500	360	2200	60	Sheet Mill, Cold Rolls	Geared	1920	Central Steel Co.	Massillon, Ohio	GE
92	500	360	2200	60	Sheet Mill, Cold Rolls	Geared	1920	Republic Iron & Steel Co.	Youngstown, Ohio	GE
93	500	360	2200	60	Cold Sheet Mill	Geared	1929	Newton Steel Co.	Monroe, Mich.	GE
94	500	360	2200	60	Cold Sheet Mill	Geared	1929	Newton Steel Co.	Monroe, Mich.	GE
95	500	360	2200	60	Cold Sheet Mill	Geared	1929	Newton Steel Co.	Monroe, Mich.	GE
96	500	360	2200	60	Cold Sheet Mill	Geared	1929	Newton Steel Co.	Monroe, Mich.	GE
97	500	400-800	230	d.c.	Cold Strip Mill	Geared	1927	Newton Steel Co.	Newton Falls, Ohio	W
98	500	400-800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton, Steel Co.	Weirton, W. Va.	AC
99	500	400-800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
100	500	400-800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
101	500	400-800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
102	500	400-800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
103	500	400-800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
104	500	400-800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
105	500	400-800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
106	500	400-800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
107	500	400-800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC

COLD ROLL DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Current	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
108	500	400–800	230	d.c.	Cold Strip	Geared	1929	Acme Steel Co.	Riverdale, Ill.	GE
109	500	400–800	230	d.c.	Cold Strip	Geared	1929	Acme Steel Co.	Riverdale, Ill.	GE
110	500	400–800	230	d.c.	Cold Strip	Geared	1929	Acme Steel Co.	Riverdale, Ill.	GE
111	500	400–800	230	d.c.	Cold Strip	Geared	1929	Acme Steel Co.	Riverdale, Ill.	GE
112	500	400–900	230	d.c.	Cold Strip	Geared	1929	Weirton Steel Co.	Weirton, W. Va.	GE
113	500	400–900	230	d.c.	Cold Strip	Geared	1929	Weirton Steel Co.	Weirton, W. Va.	GE
114	500	400–900	230	d.c.	Cold Strip	Geared	1929	Cold Metal Process Co.	Youngstown, Ohio	GE
115	500	400–900	230	d.c.	Cold Strip	Geared	1929	Cold Metal Process Co.	Youngstown, Ohio	GE
116	500	442	2200	60	Cold Roll Mill	Geared	1922	Follansbee Brothers Co.	Toronto, Ohio	W
117	500	450	550	60	12″ Cold Roll Mill	Geared	1914	Worcester Pressed Steel Co.	Worcester, Mass.	GE
118	500	450	4000	50	Cold Strip Mill	Geared	1929	Riverside Metal Co.	Riverside, N. J.	W
119	500	514	2200	60	Cold Roll Sheet Mill	Geared	1929	Follansbee Brothers Co.	Follansbee, W. Va.	EM
120	500	600	6600	60	Cold Sheet Mill	Geared	1929	Tenn. Coal Iron & R. R.	Fairfield, Ala.	GE
121	600	150	550	60	Sheet Mill, Cold Rolls	Rope	1909	Weirton Steel Co.	Weirton, W. Va.	GE
122	*600	257	2300	60	Cold Sheet Mill	Geared	1929	American Sheet & Tinplate Co.	Vandergrift, Pa.	W
123	*600	300	2300	60	Cold Sheet Mill	Geared	1929	American Sheet & Tinplate Co.	Vandergrift, Pa.	W
124	600	400–800	230	d.c.	Cold Strip Mill	Geared	1927	American Rolling Mill Co.	Ashland, Ky.	W
125	600	400–800	230	d.c.	Cold Strip Mill	Geared	1927	American Rolling Mill Co.	Ashland, Ky.	W
126	600	400–800	230	d.c.	Cold Strip Mill	Geared	1927	American Rolling Mill Co.	Ashland, Ky.	W
127	600	400–800	230	d.c.	Cold Strip Mill	Geared	1927	American Rolling Mill Co.	Ashland, Ky.	W
128	600	400–800	230	d.c.	Cold Strip Mill	Geared	1927	American Rolling Mill Co.	Ashland, Ky.	W
129	700	502	2200	60	Cold Roll Mill	Geared	1917	Carnahan Tin Plate & Sheet Co.	Canton, Ohio	W
130	750	100	2200	25	Tin Mill, Cold Rolls	Geared	1915	American Sheet & Tin Plate Co.	Gary, Ind.	GE
131	750	100	2200	25	Tin Mill, Cold Rolls	Geared	1915	American Sheet & Tin Plate Co.	Gary, Ind.	GE
132	750	125	2200	25	Tin Mill, Cold Rolls	Rope	1915	McKeesport Tin Plate Co.	McKeesport, Pa.	GE
133	750	125	2200	25	Tin Mill, Cold Rolls	Rope	1915	McKeesport Tin Plate Co.	McKeesport, Pa.	GE
134	750	240	2200	60	Sheet Mill, Cold Rolls	Geared	1919	Wheeling Steel Corp.	Stuebenville, Ohio	GE
135	750	300–600	230	d.c.	Cold Rolling Mill	Geared	1924	International Nickel Co.	Huntington, W. Va.	AC
136	750	300–600	230	d.c.	Bliss Cold Roll Drive	Geared	1926	International Nickle Co.	Huntington, W. Va.	AC
137	800	375	2200	25	Sheet Mill, Cold Rolls	Geared	1919	Eastern Rolling Mills Co.	Baltimore, Md.	GE
138	1000	235	2200	60	Cold Tin Mill	Geared	1928	Columbia Steel Co.	Pittsburgh, Cal.	W
139	1200	367	2200	25	Cold Roll Mill	Geared	1916	Bethlehem Steel Co.	Sparrows Point, Md.	W

SHEET BAR AND SKELP MILL DRIVES

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1	350	500	230	d.c.	16″ Cont. Skelp Mill	Geared	1924	Gary Tube Co.	Gary, Ind.	AC
2	500	180–360	600	d.c.	14″-12″ Skelp Mill	Geared	1926	Wheeling Steel Corp.	Benwood, W. Va.	GE
3	550	575	2200	60	16″ Skelp Mill	Geared	1919	Tyler Tube & Pipe Co.	Washington, Pa.	W
4	800	350	2200	60	24″ Sheet Bar (B.H.) Mill	Geared	1915	Central Steel Co.	Massillon, Ohio	W
5	800	250–600	600	d.c.	16″–9″ Skelp Mill	Direct	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
6	800	250–600	600	d.c.	16″–9″ Skelp Mill	Geared	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
7	800	350–790	600	d.c.	13″ Skelp Mill	Geared	1928	National Tube Co.	McKeesport, Pa.	GE
8	800	350–790	600	d.c.	13″ Skelp Mill	Geared	1928	National Tube Co.	McKeesport, Pa.	GE
9	800	505	6600	60	Bar Plate Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
10	800	505	6600	60	Bar Plate Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
11	1000	125	230	d.c.	Sheet Bar Mill	Geared	1920	Allegheny Steel Co.	Brackenridge, Pa.	GE
12	1000	145–327	600	d.c.	13″ Skelp Mill	Direct	1928	National Tube Co.	McKeesport, Pa.	GE
13	1000	190–427	600	d.c.	13″ Skelp Mill	Direct	1928	National Tube Co.	McKeesport, Pa.	GE
14	1000	209	6600	25	14″ Cont. Skelp Mill	Coupled	1924	Gary Tube Co.	Gary, Ind.	AC
15	1000	293	6600	25	14″ Cont. Skelp Mill	Geared	1924	Gary Tube Co.	Gary, Ind.	AC
16	1000	600	2200	60	16″ Skelp Mill	Geared	1923	Elyria Iron & Steel Co.	Elyria, Ohio	GE
17	1000	585	6600	60	Bar Plate Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
18	1200	250–550	600	d.c.	16″–9″ Skelp Mill	Direct	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
19	1200	705	6600	60	Bar Plate Mill	Geared	1927	American Rolling Mill	Middletown, Ohio	W
20	1100	214–320	600	d.c.	12″ Skelp Mill	Direct	1926	Bethlehem Steel Co.	Sparrows Point, Md.	W
21	1100	240–382	600	d.c.	12″ Skelp Mill	Direct	1926	Bethlehem Steel Co.	Sparrows Point, Md.	W
22	1250	294	6600	25	14″ Cont. Skelp Mill	Coupled	1924	Gary Tube Co.	Gary, Ind.	AC
23	1500	140–280	600	d.c.	18″–16″ Skelp Mill	Direct	1929	A. M. Byers Co.	Fittsburgh, Pa.	GE
24	1500	150–300	600	d.c.	21″ Sheet Bar Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
25	1500	150–300	600	d.c.	21″ Sheet Bar Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
26	1500	234	2200	60	26″ Sheet Bar Mill	Geared	1916	Canton Sheet Steel Co.	Canton, Ohio	W
27	1500	250–565	600	d.c.	13″ Skelp Mill	Direct	1928	National Tube Co.	McKeesport, Pa.	GE
28	1500	270	2200	60	24″ Sheet Bar Mill	Geared	1914	Central Steel Co.	Massillon, Ohio	W
29	1500	270	2200	60	22″ Sheet Bar, Billet Mill	Geared	1918	Central Steel Co.	Massillon, Ohio	W
30	1500	277	2200	60	22″ Skelp Mill	Direct	1924	Bethlehem Steel Corp.	Coatesville, Pa	GE
31	1500	315–630	600	d.c.	13″ Skelp Mill	Direct	1928	National Tube Co.	McKeesport, Pa.	GE
32	1500	322–193	2200	60	18″ Sheet Bar Mill	Geared	1926	Columbia Steel Co.	Pittsburgh, Calif.	W
33	1500	368	2200	25	Sheet Bar (Fin.) Mill	Geared	1923	Inland Steel Co.	Chicago, Ill.	W
34	1500	435	2200	60	Sheet Bar Mill	Geared	1929	Carnegie Steel Co.	Mingo Junction, O.	W
35	1500	450	2200	30	3 High Skelp Mill	Geared	1915	Spang Chalfant Co.	Etna, Pa.	GE
36	1500	491	6600	25	14″ Cont. Skelp Mill	Geared	1924	Gary Tube Co.	Gary, Ind.	AC
37	1500	705	2200	60	Skelp Mill Scarfing Stand	Geared	1923	Bethlehem Steel Corp.	Coatesville, Pa.	AC
38	1800	275–550	600	d.c.	12″ Skelp Mill	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	W
39	1800	275–550	600	d.c.	12″ Skelp Mill	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	W
40	2000	50–100	600	d.c.	30″ Rev. Sheet Bar Mill	Direct	1919	Follansbee Brothers Co.	Toronto, Ohio	W
41	2000	85–165	600	d.c.	21″ Continuous Sheet Bar and Skelp Mill	Direct	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
42	2000	85–165	600	d.c.	21″ Continuous Sheet Bar and Skelp Mill	Direct	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
43	2000	85–165	600	d.c.	21″ Continuous Sheet Bar and Skelp Mill	Direct	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
44	2000	200–400	600	d.c.	14″-12″ Skelp Mill	Geared	1926	Wheeling Steel Co.	Benwood, W. Va.	GE
45	2000	200–400	600	d.c.	14″-12″ Skelp Mill	Geared	1926	Wheeling Steel Co.	Benwood, W. Va.	GE
46	2000	200–400	600	d.c.	14″-12″ Skelp Mill	Geared	1926	Wheeling Steel Co.	Benwood, W. Va.	GE
47	2000	234–161	2200	60	10″ Skelp (Fin.) Mill	Belted	1916	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
48	2000–2000	250–161	6600	25	10″ Skelp Mill	Geared	1915	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
49	2000	275–550	600	d.c.	10″ Skelp Mill	Geared	1928	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
50	2000	275–550	600	d.c.	18″–16″ Skelp Mill	Geared	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
51	2000	294	6600	25	14″ Cont. Skelp Mill	Coupled	1924	Gary Tube Co.	Gary, Ind.	AC
52	2000	300–500	600	d.c.	Bar Plate Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
53	2000	300–500	600	d.c.	Bar Plate Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
54	2000	300–500	600	d.c.	Bar Plate Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
55	2000	350–234	2200	60	10″ Skelp (Rough.) Mill	Geared	1916	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
56	2300–1300	115.4–65	6600	25	10″ Skelp Mill	Geared	1915	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
57	2500	146	6600	25	16″ Cont. Skelp Mill	Coupled	1924	Gary Tube Co.	Gary, Ind.	AC
58	2500	184	6600	25	Skelp Mill	Rope	1908	National Tube Co.	Lorain, Ohio	W
59	2500	184	6600	25	Skelp Mill	Rope	1908	National Tube Co.	Lorain, Ohio	W
60	2500	200–400	600	d.c.	21″ Sheet Bar Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE

SHEET BAR AND SKELP MILL DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
61	2500	200–400	600	d.c.	21″ Sheet Bar Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
62	2500	200–400	600	d.c.	21″ Sheet Bar Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
63	2500	200–400	600	d.c.	21″ Sheet Bar Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
64	2500	252	2200	60	Skelp Mill	Geared	1917	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
65	2500	252	2200	60	Skelp Mill	Geared	1917	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
66	2500	295	6600	25	16″ Cont. Skelp Mill	Coupled	1924	Gary Tube Co.	Gary, Ind.	AC
67	2600	320–275	600	d.c.	26″ & 21″ Cont. Skelp Mill	Direct	1926	Bethlehem Steel Co.	Sparrows Point, Md.	GE
68	3000	65–130	600	d.c.	30″ Rev. Bar Mill	Direct	1927	National Tube Co.	Lorain, Ohio	W
69	3000	65–130	650	d.c.	30″ Rev. Bar Mill	Direct	1927	Jones & Laughlin Steel Co.	Woodlawn, Pa.	W
70	3000	184	6600	25	16″ Cont. Skelp Mill	Coupled	1924	Gary Tube Co.	Gary, Ind.	AC
71	3000	200–400	600	d.c.	18″–16″ Skelp Mill	Geared	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
72	3000	354–212	2200	60	Skelp Mill	Geared	1920	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
73	3000–2250–1500	500–375–250	2200	25	24″ Sheet Bar Mill	Geared	1926	Inland Steel Co.	Indiana Harbor, Ind.	GE
74	3600–1940	290–156	2200	60	21″ Continuous Sheet Bar and Skelp Mill	Geared	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
75	4000	80	650	d.c.	30″ Universal Skelp Mill	Direct	1922	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
76	4000	83.3	6600	25	26″ x 21″ Cont. Skelp Mill	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	GE
77	4500	120–255	750	d.c.	Univ. Skelp Mill	Coupled	1925	Gary Tube Co.	Gary, Ind.	AC
78	5000	100	2200	60	19″ Cont. Sheet Bar Mill	Direct	1927	Continental Steel Corp.	Kokomo, Ind.	GE
79	5000	514	6600	60	18″ Sheet Bar Mill	Geared	1928	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
80	5500	370	6600	25	16″ Cont. Skelp Mill	Geared	1924	Gary Tube Co.	Gary, Ind.	AC
81	6500	187.5	6600	25	26″ x 21″ Cont. Skelp Mill	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	GE
82	6700–5000–3320	500–375–250	6600	25	26″ x 21″ Cont. Skelp Mill	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	GE
83	7500–4040	250–134	2200	60	21″ Continuous Sheet Bar and Skelp Mill	Geared	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE

MULTI-SPEED DRIVES

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1	300–300–150	600–400–300	440		Bar Mill	Chain	1916	Vulcan Crucible Steel Co.	Aliquippa, Pa.	GE
2	350–350	150–100	6600		12″ Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
3	350–350	375–214	6600		9″ Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
4	400–225	600–300	550		Bar Mill	Geared	1909	Ludlum Steel Co.	Watervliet, N. Y.	GE
5	400–265	875–585	2200	60	Bar Mill	Geared	1913	Old Dominion Iron & Nail Co.	Richmond, Va.	W
6	450–360	870–695	2200	60	10″ Merchant Mill	Geared	1918	Cleveland Hardware Co.	Cleveland, Ohio	W
7	450–360	875–700	2200	60	9″ Merchant Mill	Geared	1915	National Lock Washer Co.	Riverside, N. J.	W
8	475–350	240–181	440	25	10″ Merchant Mill	Direct	1914	Kansas City Bolt & Nut Co.	Kansas City, Mo.	W
9	485–360	870–695	2200	60	10″ Merchant Mill	Geared	1915	Old Dominion Iron & Nail Co.	Richmond, Va.	W
10	500	730–485	2200	50	8″ Merchant Mill	Geared	1919	Southern Calif. Iron & Steel Co.	Los Angeles, Cal.	W
11	500–250	750–375	3000		Merchant Mill	Geared	1923	Consolidated Rolling Mills	Mexico City, Mex.	GE
12	500–400	775–585	550	40	10″ Merchant Mill	Geared	1917	Cohoes Rolling Mill Co.	Cohoes, N. Y.	W
13	500–400	875–700	550	60	10″–14″ Merchant Mill	Geared	1916	The Texas Steel Co.	Fort Worth, Texas	W
14	550–360	875–585	2200	60	12″ Merchant Mill	Geared	1917	Norfolk & Western Railroad	Roanoke, Va.	W
15	575–575	375–250	6600		8″ Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
16	575–575	300–214	6600		10″ Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
17	600–600	214–93	6600		12″ Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
18	600–300	600–300	550	60	9″ Bar Mill No. 2	Geared	1926	Ludlum Steel Co.	Watervliet, N. Y.	GE
19	800–800	214–167	6600		16″ Merchant Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
20	800–400	450–225	2200	60	Copper Mill	Direct	1925	Anaconda Copper Mining Co.	Mont.	GE
21	800–400	600–300	550		Bar Mill	Geared	1917	Ludlum Steel Co.	Watervliet, N. Y.	GE
22	800–363	706–320	600		10″ Rod Mill	Geared	1922	Wheeling Steel Corp.	Portsmouth, Ohio	GE
23	800	730–485	2200	50	12″ Merchant Mill	Geared	1919	Southern Calif. Iron & Steel Co.	Los Angeles, Cal.	W
24	800–800	900–720	2200		9″ Merchant Mill	Geared	1923	Knoxville Iron Co.	Knoxville, Tenn.	GE
25	800–800	900–720	2200		9″ Merchant Mill	Geared	1923	Knoxville Iron Co.	Knoxville, Tenn.	GE
26	800	875–700	2200	60	16″ Merchant Mill	Geared	1920	Kansas City Bolt & Nut Co.	Kansas City, Mo.	W
27	850–850	214–187	6600		10″ Merchant Mill	Rope	1916	Illinois Steel Co.	Gary, Ind.	GE
28	850–850	214–187	6600		10″ Merchant Mill	Rope	1916	Illinois Steel Co.	Gary, Ind.	GE
29	900–900	214–150	2200		12″ Merchant Mill	Direct	1910	Algoma Steel Co.	Saulte Ste. Marie, Can.	GE
30	1000–400	257–128	550	60	9″ Bar Mill No. 1	Geared	1926	Ludlum Steel Co.	Watervliet, N. Y.	GE
31	1100–1500	91	2200	25	84″ Plate (Fin.) Mill	Direct	1910	American Sheet & Tin Plate Co.	Gary, Ind.	W
32	1300–1300	214–187	6600		10″ Merchant Mill	Geared	1916	Illinois Steel Co.	Gary, Ind.	GE
33	1800–1800	250–125	6600		22″ Merchant Mill	Geared	1913	Bethlehem Steel Co.	Bethlehem, Pa.	GE
34	1800–1350	300	2200	60	Tube Rolling Mill	Geared	1927	National Tube Co.	Ellwood City, Pa.	GE
35	2000	163–113	6600	25	10″ Merchant Mill	Direct	1909	Illinois Steel Co.	Gary, Ind.	W
36	2500	113–91	6600	25	12″ Merchant Mill	Geared	1909	Illinois Steel Co.	Gary, Ind.	W
37	6500–4500	107–53	6600		60″ 3-High Univ. plate Mill	Direct	1909	Illinois Steel Co.	Gary, Ind.	GE

SYNCHRONOUS MOTORS

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1	300	450	440	60	Copper & Brass Rolling Mill	Geared	1927	New Haven Copper Co.	Seymour, Conn.	EM
2	300	514	440	60	Copper & Brass Rolling Mill	Geared	1928	Dallas Brass & Copper Co.	Chicago, Ill.	EM
3	300	514	440	60	Copper & Brass Rolling Mill	Geared	1924	Dallas Brass & Copper Co.	Chicago, Ill.	EM
4	300	514	440	60	Copper & Brass Rolling Mill	Geared	1924	Dallas Brass & Copper Co.	Chicago, Ill.	EM
5	300	514	440	60	Copper & Brass Rolling Mill	Geared	1924	Dallas Brass & Copper Co.	Chicago, Ill.	EM
6	*300	900	2200	60	Rail Re-rolling Mill	Geared	1929	Bancroft Martin Co.	Portland, Me.	GE
7	350	450	2200	60	Tube Rolling Mill	Geared	1925	Pittsburgh Steel Co.	Allenport, Pa.	EM
8	350	514	2200	60	Tube Mill	Geared	1928	Globe Steel Tubes Co.	Milwaukee, Wis.	AC
9	350	514	2200	60	Tube Mill	Geared	1928	Globe Steel Tubes Co.	Milwaukee, Wis.	AC
10	350	720	2200	60	Tube Mill	Geared	1928	Globe Steel Tubes Co.	Milwaukee, Wis.	AC
11	350	720	2200	60	Tube Mill	Geared	1928	Globe Steel Tubes Co.	Milwaukee, Wis.	AC
12	400	277	440	60	Chromel Mill	Direct	1928	Hoskins Mfg. Co.	Detroit, Mich.	W
13	400	277	2200	60	Copper Rod Mill	Direct	1927	Washburn Wire Co.	Phillipsdale, R. I.	AC
14	400	300	440	60	Copper & Brass Rolling Mill	Geared	1928	Dallas Brass & Copper Co.	Chicago, Ill.	EM
15	400	300	440	60	Copper & Brass Rolling Mill	Geared	1927	Dallas Brass & Copper Co.	Chicago, Ill.	EM

SYNCHRONOUS MOTORS—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
16	400	300	440	60	Copper & Brass Rolling Mill	Geared	1927	Dallas Brass & Copper Co.	Chicago, Ill.	EM
17	400	400	2200	60	9″ Merchant Mill	Belted	1928	Carpenter Steel Co.	Reading, Pa.	GE
18	400	400	2200	60	Copper Rod Mill	Direct	1927	Washburn Wire Co.	Phillipsdale, R. I.	AC
19	400	450	2200	60	12″ Bar Mill	Geared	1924	Atchison, Topeka and Santa Fe R.R.	Chicago, Ill.	AC
20	400	450	2200	60	9″ Bar Mill	Geared	1924	Atchison, Topeka and Santa Fe R.R.	Chicago, Ill.	AC
21	*400	450	4600	50	Copper Mill	Geared	1929	Chase Co. Inc.	Waterbury, Conn.	GE
22	*400	450	4600	60	Copper Mill	Geared	1929	Chase Co. Inc.	Waterbury, Conn.	GE
23	*400	450	4600	60	Copper Mill	Geared	1929	Chase Co. Inc.	Waterbury, Conn.	GE
24	*400	450	4600	60	Copper Mill	Geared	1929	Chase Co. Inc.	Waterbury, Conn.	GE
25	*400	450	4600	50	Copper Mill	Geared	1929	Chase Co. Inc.	Waterbury, Conn.	GE
26	*400	450	4600	60	Copper Mill	Geared	1929	Chase Co. Inc.	Waterbury, Conn.	GE
27	*400	450	4600	60	Copper Mill	Geared	1929	Chase Co. Inc.	Waterbury, Conn.	GE
28	*400	514	440	60	Sheet Mill	Geared	1929	Aluminum Prods. Co.	LaGrange, Ill.	W
29	400	514	2200	60	Cold Sheet Mill	Geared	1927	American Rolling Mills Co.	Zanesville, Ohio	W
30	400	600	2300	60	Brass Mill	Geared	1928	Chase Companies, Inc.	Waterville, Conn.	GE
31	400	600	2300	60	Brass Mill	Geared	1928	Chase Companies, Inc.	Waterville, Conn.	GE
32	400	720	4600	60	Copper Mill	Geared	1927	Higgins Brass & Mfg. Co.	Detroit, Mich.	GE
33	400	720	4600	60	Copper Mill	Geared	1927	Higgins Brass & Mfg. Co.	Detroit, Mich.	GE
34	450	720	2200	60	Wire Drawing Bench Mill	Geared	1928	Gulf States Steel Co.	Birmingham, Ala.	W
35	450	720	2200	60	Wire Drawing Bench Mill	Geared	1928	Gulf States Steel Co.	Birmingham, Ala.	W
36	450	720	2200	60	Wire Drawing Bench Mill	Geared	1928	Gulf States Steel Co.	Birmingham, Ala.	W
37	450	720	2200	60	Reeler and Sinking Mill	Geared	1927	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
38	450	720	2200	60	Reeler and Sinking Mill	Geared	1925	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
39	450	720	2200	60	Reeler and Sinking Mill	Geared	1925	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
40	450	720	2200	60	Reeler and Sinking Mill	Geared	1925	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
41	450	720	2200	60	Reeler and Sinking Mill	Geared	1925	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
42	500	120	2200	60	Copper Rod Mill	Direct	1927	Washburn Wire Co.	Phillipsdale, R. I.	AC
43	500	240	2200	60	Cold Roll Mill	Geared	1928	Columbia Steel Corporation	Pittsburgh, Calif.	W
44	500	257	2300	60	Rail Mill	Geared	1928	West Virginia Rail Co.	Huntington, W. Va.	AC
45	*500	277	440	60	10″ Merchant Mill	Direct	1929	Hoskins Mfg. Co.	Detroit, Mich.	W
46	*500	327	2200	60	Copper Mill	Geared	1929	Apollo Steel	Apollo, Pa.	GE
47	500	360	440	60	Brass Mill	Geared	1923	Rome Brass & Copper Co.	Rome, N. Y.	GE
48	500	360	440	60	Brass Mill	Geared	1923	Rome Brass & Copper Co.	Rome, N. Y.	GE
49	500	450	2300	60	Brass Mill	Geared	1928	Chase Companies, Inc.	Waterville, Conn.	GE
50	*500	450	4000	60	Cold Strip Mill	Geared	1929	Riverside Metal Co.	Riverside, N. J.	W
51	*503	514	2200	60	Cold Roll Sheet Mill	Geared	1929	Follansbee Brothers Co.	Follansbee, W. Va.	EM
52	500	600	2200	60	Sizing Mill	Geared	1913	Cleveland Brass & Copper Co.	Cleveland, O.	AC
53	600	90	440	60	Brass & Nickel Silver Rolling Mill	Direct	1928	Waterbury Rolling Mills	Waterbury, Conn.	EM
54	*600	257	2300	50	Cold Sheet Mill	Geared	1929	American Sheet & Tinplate Co.	Vandergrift, Pa.	W
55	*600	300	2200	25	2-Stand 9″ Mill	Direct	1929	Algoma Steel Co.	St. Marie, Ont.	GE
56	*600	300	2300	60	Cold Sheet Mill	Geared	1929	American Sheet & Tinplate Co.	Vandergrift, Pa.	W
57	*600	375	6600	25	Tube Mill	Geared	1929	National Tube Co.	Gary, Ind.	AC
58	600	400	2300	60	10″ Rod Mill	Direct	1927	Copperweld Steel Co.	Glassport, Pa.	GE
59	*600	450	2200	60	Reeling Mill	Geared	1929	Spang Chalfant Co.	Ambridge, Pa.	GE
60	*600	450	2200	50	Reeling Mill	Geared	1929	Spang Chalfant Co.	Ambridge, Pa.	GE
61	*600	450	4600	50	Copper Mill	Geared	1929	Chase Co. Inc.	Waterbury, Conn.	GE
62	*600	450	4600	60	Copper Mill	Geared	1929	Chase Co. Inc.	Waterbury, Conn.	GE
63	*600	450	4600	60	Copper Mill	Geared	1929	Chase Co. Inc.	Waterbury, Conn.	GE
64	600	514	2300	60	8″ Rod Mill	Direct	1927	Copperweld Steel Co.	Glassport, Pa.	GE
65	600	600	2200	60	8″ Merchant Mill	Geared	1928	Timken Roller Bearing Co.	Canton, Ohio	GE
66	*600	720	4600	60	4-High Mill	Geared	1929	Michigan Brass & Copper Co.	Detroit, Mich.	GE
67	*600	720	4600	60	4-High Mill	Geared	1929	Michigan Brass & Copper Co.	Detroit, Mich.	GE
68	600	900	2300	60	10″ Merchant Mill	Geared	1927	Copperweld Steel Co.	Glassport, Pa.	GE
69	*700	100	2300	60	Hot Strip Mill	Direct	1929	American Tube & Stamping Co.	Bridgeport, Conn.	W
70	*700	300	2300	60	Hot Strip Mill	Direct	1929	American Tube & Stamping Co.	Bridgeport, Conn.	W
71	800	107	6600	25	Tube Rolling Mill	Direct	1925	National Tube Co.	Lorain, Ohio	AC
72	800	109	2200	60	2-21″ Rolls	Direct	1924	Globe Steel Tubes Co.	Milwaukee, Wis.	AC
73	*800	257	2300	60	Hot Strip Mill	Direct	1929	American Tube & Stamping Co.	Bridgeport, Conn.	W
74	800	300	2300	60	10″ Merchant Mill	Geared	1928	Laclede Steel Co.	Madison, Ill.	GE
75	800	450	2200	60	8″ Strip Mill	Direct	1928	Superior Steel Co.	Carnegie, Pa.	W
76	800	720	4600	60	Copper Rolling Mill	Geared	1925	Michigan Copper & Brass Co.	Detroit, Mich.	AC
77	800	720	4600	60	Copper Rolling Mill	Geared	1925	Michigan Copper & Brass Co.	Detroit, Mich.	AC
78	800	720	4600	60	Copper Rolling Mill	Geared	1925	Michigan Copper & Brass Co.	Detroit, Mich.	AC
79	800	720	4600	60	Copper Rolling Mill	Geared	1925	Michigan Copper & Brass Co.	Detroit, Mich.	AC
80	800	720	4600	60	Copper Rolling Mill	Geared	1925	Michigan Copper & Brass Co.	Detroit, Mich.	AC
81	*800	720	2300	60	Copper Rod Mill	Geared	1929	Standard Underground Cable Co.	Perth Amboy, N. J.	W
82	850	514	2200	60	14″ Rough Mill	Direct	1927	Copper Weld Steel Co.	Glassport, Pa.	W
83	*1000	79	6600	25	Tube Mill	Direct	1929	National Tube Co.	McKeesport, Pa.	W
84	1000	189.5	2200	60	Wire Mill	Direct	1928	American Steel & Wire Co.	Cleveland, Ohio	W
85	1000	225	2300	60	Rail Mill	Geared	1928	West Virginia Rail Co.	Huntington, W. Va.	AC
86	*1000	225	2300	50	Copper Rod Mill	Direct	1929	Standard Underground Cable Co.	Perth Amboy, N. J.	W
87	*1000	360	2300	60	Copper Rod Mill	Direct	1929	Standard Underground Cable Co.	Perth Amboy, N. J.	W
88	1000	375	6600	25	Piercing Mill	Geared	1925	National Tube Co.	Lorain, O.	AC
89	*1000	514	4000	50	Brass Mill	Geared	1929	Riverside Metal Co.	Riverside, N. J.	GE
90	1200	112.5	2200	60	Tube Mill	Geared	1928	Globe Steel Tubes Co.	Milwaukee, Wis.	AC
91	*1200	120	2300	50	Hot Strip Mill	Direct	1929	American Tube & Stamping Co.	Bridgeport, Conn.	W
92	1200	514	2200	60	8″ Merchant Mill	Geared	1928	Timken Roller Bearing Co.	Canton, Ohio	GE
93	1300	257	6600	60	Rod Mill	Direct	1928	Gulf States Steel Co.	Birmingham, Ala.	W
94	1350	600	2300	60	Copper Mill	Geared	1918	American Brass Co.	Waterbury, Conn.	GE
95	1500	62½	6600	25	Tube Rolling Mill	Direct	1927	National Tube Co.	Lorain, Ohio	AC
96	1500	62.5	6600	25	Tube Rolling Mill	Direct	1926	Gary Tube Co.	Gary, Ind.	AC
97	1500	150	6600	60	Wide Strip Mill	Geared	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
98	1500	164	2200	60	Hot Strip Mill	Direct	1928	Danville Structural Steel Co.	Danville, Pa.	EM
99	1500	164	2200	60	Hot Strip Mill	Direct	1928	Danville Structural Steel Co.	Danville, Pa.	EM
100	*1500	180	2300	50	Hot Strip Mill	Direct	1929	American Tube & Stamping Co.	Bridgeport, Conn.	W
101	1750	180	6600	60	Rod Mill	Direct	1928	Gulf States Steel Co.	Birmingham, Ala.	W
102	1750	514	6600	60	Rod Mill	Geared	1928	Gulf States Steel Co.	Birmingham, Ala.	W
103	1800	150	6600	60	Tube Mill	Direct	1928	Pittsburgh Steel Co.	Allenport, Pa.	W
104	*2000	62.5	6600	25	Tube Mill	Direct	1929	National Tube Co.	Loraine, Ohio	AC
105	*2000	62.5	6600	25	Tube Mill	Direct	1929	National Tube Co.	McKeesport, Pa.	W
106	*2000	68	6600	60	Tube Mill	Direct	1929	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
107	*2000	94	2200	25	4-Stand 18″ Mill	Direct	1929	Algoma Steel Co.	Ste. Marie, Ont.	GE
108	2000	180	2200	60	14″ Strip Mill	Direct	1928	Superior Steel Co.	Carnegie, Pa.	W
109	2000	200	2200	60	Merchant Mill	Direct	1928	Danville Structural Steel Co.	Danville, Pa.	W
110	*2000	250	6600	25	Tube Mill	Geared	1929	National Tube Co.	McKeesport, Pa.	W
111	*2000	250	6600	25	Tube Mill	Geared	1929	National Tube Co.	McKeesport, Pa.	W
112	2100	720	6600	60	Rod Mill	Geared	1928	Gulf States Steel Co.	Birmingham, Ala.	W
113	2500	80	2200	60	Bar Mill	Direct	1928	Interstate Iron & Steel Co.	Chicago, Ill.	AC
114	*2500	125	6600	25	30″ Slab & Billet Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
115	2500	257	2200	60	Piercing Mill	Geared	1925	Globe Steel Tubes Co.	Milwaukee, Wis.	AC
116	2750	450	6600	60	Rod Mill	Geared	1928	Gulf States Steel Co.	Birmingham, Ala.	W
117	*3000	100	11000	60	23″3-High Billet Mill	Direct	1929	American Steel & Wire Co.	Cleveland, Ohio	GE
118	*3000	150	6600	60	Piercing Mill	Direct	1929	Pittsburgh Steel Co.	Monnessen, Pa.	GE
119	*3000	187.5	6600	25	30″ Slab & Billet Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
120	3000	250	6600	25	Piercing and Expanding Mill	Direct	1927	National Tube Co.	Lorain, Ohio	AC

SYNCHRONOUS MOTORS—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
121	3000	250	6600	25	Piercing and Expanding Mill	Direct	1927	National Tube Co.	Lorain, Ohio	AC
122	*3000	300	2200	25	52″ Structural Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
123	*3500	250	6600	25	Tube Mill	Geared	1929	National Tube Co.	McKeesport, Pa.	W
124	*3500	250	6600	25	Tube Mill	Geared	1929	National Tube Co.	McKeesport, Pa.	W
125	*3500	300	6600	25	30″ Slab & Billet Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
126	4000	83	6600	25	26″-21″ Skelp Mill	Direct	1926	Bethlehem Steel Co.	Sparrows Point, Md.	GE
127	*4000	138-5	6600	60	Bar Mill	Direct	1929	Great Lakes Steel	Detroit, Mich.	W
128	4000	450	2200	60	Billet and Bar Mill	Geared	1927	Carnegie Steel Co.	Sharon, Pa.	W
129	5000	82	2200	60	21″ Bar and Billet Mill	Direct	1928	Columbia Steel Corporation	Pittsburgh, Calif.	W
130	5000	82	2200	60	21″ Bar and Billet Mill	Direct	1928	Columbia Steel Corporation	Pittsburgh, Calif.	W
131	5000	100	2200	60	19″ Sheet Bar Mill	Geared	1927	Continental Steel Corp.	Kokomo, Ind.	GE
132	5000	240	2200	60	51″ Piercing Mill	Direct	1927	Standard Seamless Tube Co.	Economy, Pa.	GE
133	*5000	300	6600	60	Bar Mill	Geared	1929	Great Lakes Steel	Detroit, Mich.	W
134	6500	187	6600	25	26″-21″ Skelp Mill	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	GE
135	9000	107	6600	25	22.5″-18″ Sheet Bar Mill	Direct	1925	Corrigan-McKinney Steel Co.	Cleveland, Ohio	GE

REVERSING MILL DRIVES

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1	350	275-470	375	d.c.	Reversing Copper Mill	Geared	1920	American Brass Company	Buffalo, N. Y.	GE
2	350	275-470	375	d.c.	Reversing Copper Mill	Geared	1920	American Brass Company	Buffalo, N. Y.	GE
3	350	275-470	375	d.c.	Reversing Copper Mill	Geared	1920	American Brass Company	Kenosha, Wis.	GE
4	350	275-470	375	d.c.	Reversing Copper Mill	Geared	1922	Taunton-New Bedford Copper Co.	Taunton, Mass.	GE
5	500	200	500	d.c.	78″ Rev. Brass Plate Mill	Geared	1920	West Virginia Metal Products Co.	Fairmont, W. Va.	W
6	500	360-612	600	d.c.	Reversing Hot Mill	Geared	1925	Michigan Copper & Brass Co.	Detroit, Mich.	GE
7	700	86	450	d.c.	Shear Intensifier	Direct	1918	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	GE
8	800	20	230	d.c.	32″ x 48″ Plate Mill	Coupled	1910	American Sheet & Tin Plate Co.	Gary, Ind.	CW
9	800	20	230	d.c.	32″ x 48″ Plate Mill	Coupled	1910	American Sheet & Tin Plate Co.	Gary, Ind.	CW
10	800	37-70	500	d.c.	Plate Mill	Coupled		Universal Rolling Mill Co.	Bridgeville, Pa.	AC
11	1000	40-60	270	d.c.	28″ Rev. Copper Mill	Direct	1927	Rome Brass & Copper Co.	Rome, N. Y.	GE
12	1000	50-100	600	d.c.	24″ Billet (Roughing)	Direct	1916	American Steel & Wire Co.	Cleveland, Ohio	W
13	1000	50-175	600	d.c.	24″ Mill	Direct	1916	Central Steel Co.	Massillon, Ohio	W
14	1200	25-50	330	d.c.	Reversing Plate Mill	Direct	1926	Lukens Steel Co.	Coatesville, Pa.	GE
15	1500	65-225	750	d.c.	48″ Rev. Structural Mill	Direct	1926	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
16	1500	65-225	750	d.c.	48″ Rev. Structural Mill	Direct	1926	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
17	1750	70-120	600	d.c.	20″ Billet Mill	Direct	1916	Youngstown Sheet & Tube Co.	Ind ana Harbor, Ind.	W
18	1800	40	600	d.c.	84″ Rev. Shrd. Plate Mill	Direct	1919	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
19	2000	50-100	600	d.c.	30″ Bar Mill	Direct	1919	Follansbee Brothers Co.	Toronto, O.	W
20	2000	0-57-163	700	d.c.	52″ Struct. Edging Mill	Direct	1926	Carnegie Steel Co.	Homestead, Pa.	W
21	2000	0-57-163	700	d.c.	52″ Struct. Edging Mill	Direct	1926	Carnegie Steel Co.	Homestead, Pa.	W
22	2000	75-225	700	d.c.	52″ Structural Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
23	2000	75-225	700	d.c.	52″ Structural Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
24	2100	50-125	700	d.c.	42″ Universal Plate Mill	Direct	1916	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
25	2100	47-120	700	d.c.	34″ Blooming Mill	Direct	1916	Penn Seaboard Steel Corporation	New Castle, Del.	W
26	2150	50-100	535	d.c.	Reversing Bar Mill	Direct	1926	Standard Seamless Tube Co.	Economy, Pa.	GE
27	2200	50-120	600	d.c.	40″ Universal Plate Mill	Direct	1919	Dominion Foundrys & Steel Co.	Hamilton, Ont.	W
28	2200	70-150	600	d.c.	28″ Blooming Mill	Direct	1920	Atlantic Steel Co.	Atlanta, Ga.	W
29	2500	53-80	660	d.c.	Reversing Plate Mill	Direct	1926	Lukens Steel Co.	Coatesville, Pa.	GE
30	2900	47-120	700	d.c.	34″ Blooming Mill	Direct	1917	Sharon Steel Hoop Co.	Youngstown, Ohio	W
31	3000	65-130	600	d.c.	30″ Rev. Bar Mill	Direct	1927	National Tube Co.	Lorain, Ohio	W
32	3000	65-130	650	d.c.	30″ Rev. Bar Mill	Direct	1927	Jones & Laughlin Steel Co.	Woodlawn, Pa.	W
33	3000	70-175	750	d.c.	24″ Bar Mill	Direct	1927	Inland Steel Corp.	Ind. Harbor, Ind.	GE
34	3000	70-150	750		24″ Reversing Bar Mill	Direct	1925	Inland Steel Co.	Indiana Harbor, Ind.	GE
35	3100	70-150	600	d.c.	Universal Plate Mill	Direct	1925	International Harvester Co	Chicago, Ill.	W
36	3200	50-120	700	d.c.	34″ Struct. (Rough.) Mill	Direct	1915	Inland Steel Co.	Indiana Harbor, Ind.	W
37	3200	50-120	700	d.c.	28″ Struct. (Fin.) Mill	Direct	1915	Inland Steel Co.	Indiana Harbor, Ind.	W
38	3250	50-120	500	d.c.	36″ Blooming Mill	Direct	1916	Am. Rolling Mill Co.	Ashland, Ky.	GE
39	3250	50-120	500	d.c.	34″ Blooming Mill	Direct	1916	Keystone Steel & Wire Co.	Peoria, Ill.	GE
40	3500	70-100	525	d.c.	32″ Blooming Mill	Direct	1913	Steel Company of Canada	Hamilton, Ont.	W
41	3500	50- 75	700	d.c.	34″ Blooming Mill	Direct	1914	Central Steel Co.	Massillon, Ohio	W
42	3500	50-120	700	d.c.	35″ Roughing Struct. Mill	Direct	1924	Bethlehem Steel Corp.	Lackawanna, N. Y.	W
43	3500	50-120	700	d.c.	34″ Blooming Mill	Direct	1925	Kokomo Steel & Wire Co.	Kokomo, Ind.	W
44	3500	50-120	700	d.c.	36″ Blooming Mill	Direct	1925	Phoenix Iron Co.	Phoenixville, Pa.	W
45	3500	50-120	750	d.c.	32″ Structural Mill	Direct	1928	Illinois Steel Co.	So. Chicago, Ill.	GE
46	3600	40- 90	600	d.c.	35″ Blooming Mill	Direct	1913	Bethlehem Steel Co.	Bethlehem, Pa.	W
47	3600	40- 90	600	d.c.	40″ Blooming Mill	Direct	1917	Illinois Steel Co.	Gary, Ind.	W
48	3750	50-130	700	d.c.	Blooming Mill	Direct	1927	Central Alloy Steel Co.	Massillon, Ohio	AC
49	4000	0-150	575	d.c.	36″ Univ. Plate Mill	Direct	1905	Illinois Steel Co.	South Chicago, Ill.	W
50	4000	50-120	700	d.c.	34″ Blooming Mill	Direct	1924	Donner Steel Co.	Buffalo, N. Y.	GE
51	4000	60-140	900	d.c.	46″ Rev. Universal Mill	Direct	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
52	4000	60-140	900	d.c.	36″ Rev. Blooming Mill	Direct	1929	Corrigan-McKinney Steel	Cleveland, Ohio	GE
53	4000	80-160	800	d.c.	32″ Universal Mill	Direct	1929	Gulf States Steel Co.		W
54	4000	58-140	750	d.c.	34″ Rev. Blooming Mill	Direct	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
55	4000	80-135	650	d.c.	30″ Univ. Skelp Mill	Direct	1922	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
56	4000	0- 80	1200	d.c.	34″ Blooming Mill	Coupled		Algoma Steel Co.	Sault Ste. Marie,Can.	AC
57	5000	40-120	600	d.c.	40″ Blooming Mill	Direct	1916	National Tube Co.	Lorain, Ohio	W
58	5000	40-120	600	d.c.	35″ Blooming Mill	Direct	1915	United Alloy Steel Corporation	Canton, Ohio	W
59	5000	40-80	700	d.c.	54″ Blooming Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
60	5000	40-80	700	d.c.	54″ Blooming Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
61	5000	50-120	700	d.c.	36″ Rev. Roughing Struct.	Direct	1924	Carnegie Steel Co.	Homestead, Pa.	W
62	5000	50-120	900	d.c.	36″ Roughing Mill	Direct	1927	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
63	5000	50-120	600	d.c.	Blooming Mill	Direct	1928	Aluminum Co. of America	Massena, N. Y.	AC
64	5000	50-130	900	d.c.	40″ Rev. Bloomer Mill	Direct	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
65	5000	70-150	900	d.c.	27″ Rev. Hot Strip Mill	Direct	1926	Columbia Steel Co.	Butler, Pa.	GE
66	5000	75-100	700	d.c.	48″ Universal Plate Mill	Direct	1923	Bethlehem Steel Co.	Lackawanna, N. Y.	W
67	5000	75-150	700	d.c.	28″ Fin. Structural Mill	Direct	1924	Bethlehem Steel Corp.	Lackawanna, N. Y.	W
68	6000	40-120	600	d.c.	44″ Blooming Mill	Direct	1919	Bethlehem Steel Co.	Steelton, Pa.	W
69	6000	60-120	700	d.c.	52″ Structural Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
70	6000	75-140	750	d.c.	28″ Structural Mill	Direct	1928	Illinois Steel Co.	So. Chicago, Ill.	GE
71	6500	40-120	600	d.c.	40″ Blooming Mill	Direct	1915	Inland Steel Co.	Indiana Harbor, Ind.	W
72	6500	50-120	600	d.c.	36″ Blooming Mill	Direct	1916	Trumbull Steel Co.	Warren, Ohio	GE
73	6500	50-120	600	d.c.	40″ Blooming Mill	Direct	1916	Bethlehem Steel Co.	Sparrows Point, Md.	GE
74	6500	50-120	600	d.c.	40″ Blooming Mill	Direct	1922	Otis Steel Co.	Cleveland, Ohio	GE
75	6500	60-140	700	d.c.	35″ Rev. Blooming Mill	Direct	1927	Illinois Steel Co.	So. Chicago, Ill.	W
76	7000	40-120	700	d.c.	Blooming Mill	Coupled	1925	Illinois Steel Co.	So. Chicago, Ill.	AC
77	7000	50-100	700	d.c.	60″ Universal Plate Mill	Direct	1919	Bethlehem Steel Co.	Sparrows Point, Md.	W
78	7000	50-100	650		46″ Slabbing Mill	Direct	1925	Bethlehem Steel Co.	Sparrows Point, Md.	GE
79	7000	50-120	700	d.c.	40″ Rev. Blooming Mill	Direct	1923	Bethlehem Steel Co.	Lackawanna, N. Y.	W
80	7000	50-120	700	d.c.	44″ Blooming Mill	Direct	1924	Carnegie Steel Co.	Homestead, Pa.	W
81	7000	50-120	700	d.c.	40″ Blooming Mill	Direct	1924	International Harvester Co. Wisconsin Steel Works	Chicago, Ill.	W
82	7000	50-120	700	d.c.	36″ Rev. Rougher Mill	Direct	1925	Inland Steel Co.	Indiana Harbor, Ind.	W
83	7000	0-50-120	700	d.c.	40″ Rev. Blooming Mill	Direct	1926	Forged Steel Wheel Co.	Butler, Pa.	W
84	7000	50-150	700	d.c.	52″ Structural Mill	Direct	1925	Carnegie Steel Co.	Homestead, Pa.	W
85	7000	50-150	700	d.c.	52″ Structural Mill	Direct	1925	Carnegie Steel Co.	Homestead, Pa.	W

REVERSING MILL DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
86	7000	55–120	900	d.c.	45″ Blooming Mill	Direct	1917	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	GE
87	7000	40–80	750	d.c.	54″ Rev. Blooming Mill	Direct	1926	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
88	7000	50–120	750	d.c.	44″ Blooming Mill	Direct	1927	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
89	7000	50–100	750	d.c.	Slabbing Mill	Direct	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
90	7000	50–120	750	d.c.	40″ Blooming Mill	Direct	1928	Illinois Steel Co.	So. Chicago, Ill.	GE
91	7000	50–130	700	d.c.	40″ Blooming Mill	Direct	1928	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
92	7000	50–80	700	d.c.	52″ Structural Mill	Direct	1929	Illinois Steel Co.	Chicago, Ill.	W
93	7000	50–120	770	d.c.	40″ Blooming Mill	Direct	1929	Great Lakes Steel	Detroit, Mich.	W
94	7000	50–120	700	d.c.	40″ Blooming Mill	Direct	1929	Gulf States Steel	Alabama City, Ala.	W
95	7000	50–100	650	d.c.	40″ x 80″ Rev. Slabbing	Direct	1929	Bethlehem Steel Co.	Sparrows Point, Md.	GE
96	7000	65–100	750	d.c.	48″ Rev. Structural Mill	Direct	1926	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
97	7000	65–100	750	d.c.	48″ Rev. Structural Mill	Direct	1926	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
98	8000	40–120	700	d.c.	54″ Blooming Mill	Direct	1925	Carnegie Steel Co.	Homestead, Pa.	W
99	8000	50–120	700	d.c.	35″ Blooming Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
100	8000	150	600	d.c.	28″ Rail Mill	Direct	1917	Bethlehem Steel Co.	Lackawanna, N. Y.	GE

A. C. SPEED SETS

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1	300–300	187.5–112.5	2200	25	12″ Merchant Mill	Direct	1914	Bethlehem Steel Co.	Lebanon, Pa.	GE
2	300–300	187.5–112.5	2200	25	12″ Merchant Mill	Direct	1914	Bethlehem Steel Co.	Lebanon, Pa.	GE
3	300–300	300–180	2200		10″ Merchant Mill	Direct	1914	Bethlehem Steel Co.	Lebanon, Pa.	GE
4	300–225–165	335–225–165	6600		12″ Hot Strip Mill	Geared	1920	Illinois Steel Co.	Gary, Ind.	GE
5	300–300	500–300	2200		9″ Merchant Mill	Direct	1914	Bethlehem Steel Co.	Lebanon, Pa.	GE
6	300–300	500–300	2200		8″ Merchant Mill	Direct	1914	Bethlehem Steel Co.	Lebanon, Pa.	GE
7	300–150	590–292	2200	60	9″ Merchant Mill	Geared	1920	Cleveland Hardware Co.	Cleveland, Ohio	W
8	350–235	300–200	6600		Merchant Mill	Geared	1920	Illinois Steel Co.	Gary, Ind.	GE
9	350–350	360–240	440	60	Bar Mill	Coupled		Simmons Mfg. Co.	Kenosha, Wis.	AC
10	400–400	107– 64	2200		16″ Bar Mill	Direct	1914	Bethlehem Steel Co.	Lebanon, Pa.	GE
11	400	720–450	2200	60	Bar Mill	Geared		Cyclops Steel Co.	Titusville, Pa.	AC
12	450	352–230	2200	60	8″ Merchant Mill	Direct	1919	Bourne-Fuller Co.	Cleveland, Ohio	W
13	450–360	440–350	2200	60	Cont. Hoop (Fin.) Mill	Direct	1920	Connors Steel Co.	Birmingham, Ala.	W
14	450–380	700–595	2200	60	Cont. Hoop (Fin.) Mill	Direct	1920	Connors Steel Co.	Birmingham, Ala.	W
15	450	730–490	4000	25	10″ Merchant Mill	Geared	1917	Atlas Steel Corporation	Dunkirk, N. Y.	W
16	500–385–250	130–100–65	440		14″ Merchant Mill	Direct	1923	Halcomb Steel Co.	Syracuse, N. Y.	GE
17	500–500	327–200	440		9″ Merchant Mill	Direct	1913	Bourne Fuller Co.	Cleveland, Ohio	GE
18	500–500–500	500–375–265	2200		10″ Merchant Mill	Direct & Belt	1916	Donner Steel Co.	Buffalo, N. Y.	GE
19	500	575–865	2200	60	10″ Merchant Mill	Geared	1921	International Nickel Co.	Huntington, W. Va.	W
20	500	575–865	2200	60	10″ Merchant Mill	Geared	1921	International Nickel Co.	Huntington, W. Va.	W
21	500–340	588–400	2200	60	Rod Mill	Geared	1928	Keystone Steel & Wire Co.	Peoria, Ill.	W
22	{500 / 250}	880–514 / 440–256	2200	60	10″ Merchant Mill	Geared	1919	Hunter Crucible Steel Co.	Cleveland, Ohio	W
23	500	888–540	6600	60	11″ Finishing Stand	Coupled		Tennessee Coal, Iron & R. R. Co.	Birmingham, Ala.	AC
24	550	320–206	2200	60	10″ Hoop Mill	Direct	1917	Atlantic Steel Co.	Atlanta, Ga.	W
25	600–525	250–125	2200		16″ & 15″ Merchant Mill	Direct & Rope	1913	Bethlehem Steel Co.	Steelton, Pa.	GE
26	600–600	300–214	2200	25	Bar Mill	Coupled & Rope		St. Louis Screw Co.	St. Louis, Mo.	W
27	600	300–214	2200	25	Bar Mill	Chain		St. Louis Screw Co.	St. Louis, Mo.	W
28	600–400–200	321–214–107	440		9″ Merchant Mill	Direct	1923	Halcomb Steel Co.	Syracuse, N. Y.	GE
29	600–400	375–210	2200		9″ Merchant Mill	Direct	1912	Forged Steel Wheel Co.	Butler, Pa.	GE
30	600–600–600	469–375–281	2200		8″ Merchant Mill	Direct	1919	Donner Steel Co.	Buffalo, N. Y.	GE
31	600	585–325	500	40	16″ Merchant Mill	Geared	1917	Cohoes Rolling Mill Co.	Cohoes, N. Y.	W
32	600–500–400	600–500–400	2200		Merchant Mill, No. 19	Direct	1916	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
33	600–600	720–360	6600	60	Hot Strip Mill	Geared		Weirton Steel Co.	Weirton, W. Va.	AC
34	700–600–400	400–300–200	2200	25	Merchant Mill, No. 10	Direct	1916	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
35	700–600–400	400–300–200	2200	25	Merchant Mill, No. 10	Belt	1916	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
36	700	485–290	2200	25	12″ Merchant Mill	Geared	1916	Halcomb Steel Co.	Syracuse, N. Y.	W
37	700	730–490	4000	25	14″ Merchant Mill	Geared	1916	Atlas Steel Corporation	Dunkirk, N. Y.	W
38	700	880–530	2200	60	10″ Finishing Mill	Geared	1923	Crucible Steel Co. of America, Park Works	Pittsburgh, Pa.	W
39	700	900–720	2200	60	10″ Merchant Mill	Geared	1929	Manitoba Bridge & Iron Works	Calgary, Can.	GE
40	750–750	225–168	440	60	Bar Mill	Coupled		Simmons Mfg. Co.	Kenosha, Wis.	AC
41	750–625–460	360–300–220	6600		12″ Hot Strip Mill	Direct	1920	Illinois Steel Co.	Gary, Ind.	GE
42	750–600–440	473–375–278	6600		12″ Hot Strip Mill	Direct	1920	Illinois Steel Co.	Gary, Ind.	GE
43	770–700–630	540–490–440	6600	25	Hoop Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	W
44	800	225–150	2200	25	12″ Bar Mill	Direct	1919	Scullin Steel Co.	St. Louis, Mo.	W
45	800	590–292	6600	60	16″ Hoop and Band Mill	Geared	1915	Weirton Steel Co.	Weirton, W. Va.	W
46	800–400	360–180	550	60	Bar Mill	Geared	1926	Ludlum Steel Co.	Watervliet, N. Y.	GE
47	800–400	360–180	550	60	Bar Mill	Geared	1926	Ludlum Steel Co.	Watervliet, N. Y.	GE
48	800–800–800	720–600–480	2200		12″ Hot Strip	Geared	1920	Canadian Electric Steel Co.	Montreal, Canada	GE
49	800–800–800	720–600–480	2200	60	3-High Blooming Mill	Geared	1927	Copperweld Steel Co.	Glassport, Pa.	GE
50	800	730–365	2200	50	22″ Bar Mill	Geared	1916	Columbia Steel Co.	Los Angeles, Cal.	W
51	800	730–365	2200	50	12″ Merchant Mill	Geared	1916	Columbia Steel Co.	Los Angeles, Cal.	W
52	800	880–490	2200	60	16″ Bar Mill	Geared	1920	Knoxville Iron Co.	Knoxville, Tenn.	W
53	800	880–623	2200	60	20″ Mer. (Roughing) Mill	Geared	1918	Hoosier Rolling Mill Co.	Terre Haute, Ind.	W
54	840–700–560	360–300–240	6600	40	Merchant Mill	Direct	1925	Bethlehem Steel Co.	Bethlehem, Pa.	GE
55	850–570	214–143	6600		Merchant Mill	Direct	1920	Illinois Steel Co.	Gary, Ind.	GE
56	900–710–620	325–257–182	2300		10″ Hoop Mill	Geared	1918	Acme Steel Goods Co.	Riverdale, Ill.	GE
57	1000	209–150	6400	25	24″ Flat (Fin.) Mill	Direct	1916	American Steel & Wire Co.	Cleveland, Ohio	W
58	1000	225–168	4000	60	Rail Rerolling Mill	Direct	1926	Inland Steel Co.	Indiana Harbor, Ind.	GE
59	1000	225–168	4000	60	Rail Rerolling Mill	Direct	1926	Inland Steel Co.	Indiana Harbor, Ind.	GE
60	1000	292–150	2200	60	12″ Merchant Mill	Direct	1918	Central Steel Co.	Massillon, Ohio	W
61	1000	590–450	4000	60	14″ Merchant Mill	Geared	1920	Calumet Steel Co.	Chicago, Ill.	W
62	1000	590–450	4000	60	14″ Merchant Mill	Geared	1920	Calumet Steel Co.	Chicago, Ill.	W
63	1000	590–495	6600	60	24″ Structural Mill	Geared	1917	Tennessee Coal, Iron & R. R. Co.	Birmingham, Ala.	W
64	1100	294–295	2200	60	20″ Merchant Mill	Rope	1912	United Alloy Steel Corporation	Canton, Ohio	W
65	1125–900–675	312–250–187	6600	25	12″ Strip Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	GE
66	1190–875–525	350–250–150	2200	40	Merchant Mill	Direct-Rope	1925	Bethlehem Steel Co.	Lebanon, Pa.	GE
67	1180–955–705	560–450–336	2200		Rod Mill	Belt	1916	Keystone Steel & Wire Co.	Peoria, Ill.	GE
68	1200–1150–800	300–214–150	2200	25	Merchant Mill, No. 10	Geared	1916	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
69	1200–1000–800	300–250–200	4400	25	14″ Merchant Mill	Direct	1919	Buffalo Bolt Co.	N. Tonawanda, N. Y.	GE
70	1200–1000–800	450–375–300	6600	25	8″ Hoop Mill, No. 9	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
71	1200–1000–800	450–375–300	6600	25	8″ Bar Mill, No. 16	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
72	1200–1200–1200	450–360–270	2300		9″ Hot Strip Mill	Geared	1916	Trumbull Steel Co.	Warren, Ohio	GE
73	1200–1200–1200	450–360–270	2300		9″ Hot Strip Mill	Geared	1916	Trumbull Steel Co.	Warren, Ohio	GE
74	1200–1200–1200	450–360–270	2300		9″ Hot Strip Mill	Direct	1916	Trumbull Steel Co.	Warren, Ohio	GE
75	1200–1000–800	450–375–300	6600	25	8″ Hoop Mill, No. 8	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
76	1200–1000–800	450–375–300	6600	25	18″ Band Mill, No. 13	Geared	1919	Carnegie Steel Co.	Youngstown, Ohio	GE
77	1200	505–303	6600	60	16″ Hoop and Band Mill	Geared	1919	Weirton Steel Co.	Weirton, W. Va.	W

A. C. SPEED SETS—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
78	1200	590-441	2200	50	16" Duo & Bull Head Mill	Geared	1916	Central Steel Co.	Massillon, Ohio	W
79	1200	590-407	2200	60	20" Merchant (Fin.) Mill	Geared	1918	Hoosier Rolling Mill Co.	Terre Haute, Ind.	W
80	1200-1200-865	340-277-200	*2200	60	11" Merchant Mill	Geared	1927	Bourne Fuller Co.	Cleveland, Ohio	GE
81	1200	600-400	2200	50	18" Merchant Mill	Geared	1929	Manitoba Bridge & Iron Works	Calgary, Can.	GE
82	1250-1000-650	650-500-325	2200		Rod Mill	Belt	1916	Wickwire Spencer Steel Co.	Buffalo, N. Y.	GE
83	1250	712-430	6600	60	3 Stand 12" Mill	Coupled		Tennessee Coal, Iron & R. R. Co.	Birmingham, Ala.	AC
84	1300-900	214-140	2200		12" Merchant Mill	Direct	1912	Forged Steel Wheel Co.	Butler, Pa.	GE
85	1350-1000	214-161	4400	25	Rail Rerolling Mill	Direct	1926	Buffalo Steel Co.	Tonawanda, N. Y.	GE
86	1350-1000	214-161	4400	25	Rail Rerolling Mill	Direct	1926	Buffalo Steel Co.	Tonawanda, N. Y.	GE
87	1400-1400	600-405	2200		21" Merchant Mill	Geared	1915	Union Rolling Mills Co.	Cleveland, Ohio	GE
88	1500	133-81.5	6600	25	18" Structural Mill	Direct	1915	Bethlehem Steel Co.	Bethlehem, Pa.	W
89	1500	210-140	6600	25	18" Bar Mill	Geared	1916	Carnegie Steel Co.	Duquesne, Pa.	W
90	1500-1250-875	300-250-175	2200	50	Merchant Mill	Direct	1925	Southern Calif. Iron & Steel Co.	Los Angeles, Cal.	GE
91	1500-1200-900	320-275-200	2200	60	10" Merchant Mill	Geared	1925	Pacific Coast Steel Co.	So. San Fran.. Cal.	GE
92	1500	322-193	2200	60	18" Sheet Bar Mill	Geared	1926	Columbia Steel Co.	Pittsburgh, Calif.	W
93	1500-1250-1000	360-300-240	2200		28" Rail Mill	Geared	1920	Bethlehem Steel Co.	Steelton, Pa.	GE
94	1500	365-244	6600	25	12" Bar Mill	Rope	1916	Carnegie Steel Co.	Duquesne, Pa.	W
95	1500-1125	375-281	2200		10" Merchant Mill	Geared	1916	Donner Steel Co.	Buffalo, N. Y.	GE
96	1500-1500	450-360	2300		16" Hot Strip Mill	Geared	1916	Trumbull Steel Co.	Warren, Ohio	GE
97	1500-1200-900	468-375-281	6600	25	12" Strip Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	GE
98	1500-1500	514-237	6600	60	Hot Strip Mill	Geared		Weirton Steel Co.	Weirton, W. Va.	AC
99	1500	514-257	6600	50		Coupled	1924	Weirton Steel Co.	Weirton, W. Va.	AC
100	1500	890-540	6600	60	4 Stand 12" Mill	Coupled		Tennessee Coal, Iron & R. R. Co.	Birmingham, Ala.	AC
101	1600	440-500-540	6600	25	Hoop Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	W
102	1600	440-500-540	6600	25	Hoop Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	W
103	1650-1500-1350	413-375-337	6600		10" Bar Mill, No. 10	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
104	1750-1750-1140	485-360-235	2200	60	16"-14" Merchant Mill	Geared	1927	Bourne Fuller Co.	Cleveland, Ohio	GE
105	1800-1500-1200	240-200-160	2300		10" Hoop Mill	Belt	1918	Acme Steel Goods Co.	Riverdale, Ill.	GE
106	1800-1800-1800	370-300-247	6600		Sheet Bar Mill	Geared	1920	American Rolling Mill Co.	Ashland, Ky.	GE
107	1800-1500-1200	450-375-300	6600		10" Hoop Mill, No. 11	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
108	1850-1450- 925	120- 94- 60	6600		16" Hand Bar Mill	Direct	1921	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
109	2000-2000-2000	100-83.3-65	6600		12" Structural Mill	Direct	1916	Bethlehem Steel Co.	Bethlehem, Pa.	GE
110	2000	234-161	2200	60	10" Skelp (Fin.) Mill	Belted	1916	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
111	2000-2000	250-161	6600		10" Skelp Mill	Geared	1915	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
112	2000	250-150	2200	60	Morgan Continuous Mil	Coupled		Interstate Iron & Steel Co.	Chicago, Ill.	AC
113	2000	350-234	2200	60	10" Skelp (Rough.) Mill	Geared	1916	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
114	2000-2000-1600	450-360-270	2200		16" Hot Strip Mill	Geared	1920	Trumbull Steel Co.	Warren, Ohio	GE
115	2000-2000-1600	450-360-270	2200		16" Hot Strip Mill	Geared	1920	Trumbull Steel Co.	Warren, Ohio	GE
116	2000-2000-1600	450-360-270	2200		16" Hot Strip Mill	Geared	1920	Trumbull Steel Co.	Warren, Ohio	GE
117	2000	500-300	2200	50	22" Merchant Mill	Geared	1927	Columbia Steel Corp.	Torrance, Calif..	GE
118	2000-1600-1200	625-500-375	6600	25	12" Strip Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	GE
119	2000-1600-1200	625-500-375	6600	25	14" Bar Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	GE
120	2070-1650-1205	235-187.5-137	6600		20" Hot Strip Mill	Direct	1920	Illinois Steel Co.	Gary, Ind.	GE
121	2200-2000-1800	275-250-225	6600		10" Bar Mill, No. 15	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
122	2200-2000-1800	275-250-225	6600	25	18" Band Mill	Geared	1925	Carnegie Steel Co.	Youngstown, Ohio	GE
123	2200	505-303	2200	60	18" Bar Mill	Geared	1919	Central Steel Co.	Massillon, Ohio	W
124	2300-1300	115.4-65	6600		10" Skelp Mill	Geared	1915	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
125	2360-1880-1440	410-327-250	2200		Rod Mill	Geared	1916	Keystone Steel & Wire Co.	Peoria, Ill.	GE
126	2470-1725-1235	430-300-215	2200		Rod Mill	Geared	1916	Wickwire Spencer Steel Co.	Buffalo, N. Y.	GE
127	2500	354-177	6600	60	16" Hoop and Band Mill	Geared	1915	Weirton Steel Co.	Weirton, W. Va.	W
128	2750-2240-1750	262-214-167	6600		12" Hot Strip Mill	Direct	1920	Illinois Steel Co.	Gary, Ind.	GE
129	2750-2500-2250	275-250-225	6600		14" Bar Mill, No. 14	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
130	3000-3000-3000	155-144-130	6600		24" Structural Mill	Direct	1917	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	GE
131	3000-2500-2000	300-250-200	6600		18" Band Mill, No. 13	Direct	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
132	3000-2500-2000	300-250-200	6600		12" Hoop Mill, No. 12	Geared	1916	Carnegie Steel Co.	Youngstown, Ohio	GE
133	3000	354-212	2200	60	24" Skelp Mill	Geared	1920	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
134	3000-2250-1500	500-375-250	2200	25	24" Sheet Bar Mill	Geared	1926	Inland Steel Co.	Indiana Harbor, Ind.	GE
135	3000	505-300	2200	60	12" Merchant Mill	Geared	1920	United Alloy Steel Corporation	Canton, Ohio	W
136	3600-1940	290-156	2200	60	21" Cont. Sheet Bar and Skelp Mill	Geared	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
137	4500-4500	500-300	2200		14" Merchant Mill	Geared	1923	Inland Steel Co.	Indiana Harbor, Ind.	GE
138	5000-4000-3000	450-360-270	2200	60	16" Hot Strip Mill	Direct	1925	Trumbull Steel Co.	Warren, Ohio	GE
139	5500-4400-3400	170-136-105	6600		20" Hot Strip Mill	Direct	1920	Illinois Steel Co.	Gary, Ind.	GE
140	5610-4500-3370	156-125-93.6	6600	25	12" Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	GE
141	6000-6000	400-317	2200	60	24"-18" Billet Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
142	6700-5000-3320	500-375-250	6600	25	26" x 21" Cont. Mill	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	GE
143	7500-4040	250-134	2200	60	21" Cont. Sheet Bar and Skelp Mill	Geared	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE

DIRECT CURRENT ADJUSTABLE SPEED DRIVES

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
1	200-300	360-920	230		Merchant Mill	Direct	1919	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
2	300	175-225	600	d.c.	10" Merchant Mill	Direct	1926	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
3	300	175-300	230	d.c.	Tube Mill	Direct	1927	Babcock & Wilcox	Beaver Falls, Pa.	W
4	300	175-300	230	d.c.	Tube Mill	Direct	1927	Babcock & Wilcox	Beaver Falls, Pa.	W
5	300	225-450	230	d.c.	Merchant Mill	Direct	1928	Barton Spider Web. Co.	Chicago, Ill.	W
6	300	250-750	250	d.c.	12" Hoop Mill	Geared	1928	Carnegie Steel Co.	Youngstown, Ohio	W
7	300	250-750	250	d.c.	10" Merchant Mill	Geared	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
8	300	267-800	230	d.c.	Hot Merchant Mill	Geared	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
9	300	267-800	230	d.c.	Hot Merchant Mill	Geared	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
10	300	267-800	230	d.c.	Hot Merchant Mill	Geared	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
11	300	300-400	230	d.c.	Cold Rolling Mill	Geared	1914	Trumbull Steel Co.	Warren, Ohio	W
12	300	300-600	230	d.c.	20" x 30" Brass Mill	Geared	1920	W. Va. Metal Products Co.	Fairmont, W. Va.	W
13	300	300-600	230	d.c.	20" x 30" Brass Mill	Geared	1920	W. Va. Metal Products Co.	Fairmont, W. Va.	W
14	300	300-600	230	d.c.	22" x 36" Brass Mill	Geared	1920	W. Va. Metal Products Co.	Fairmont, W. Va.	W
15	300	300-600	230	d.c.	22" x 36" Brass Mill	Geared	1920	W. Va. Metal Products Co.	Fairmont, W. Va.	W
16	300	300-400	230	d.c.	Cold Rolling	Geared	1920	Alan Wood, Iron & Steel Co.	Conshohocken, Pa	W
17	300	300-650	250	d.c.	10" Rod Mill	Direct	1927	Washburn Wire Co.	Phillipsdale, R. I.	W
18	300	300-650	250	d.c.	10" Rod Mill	Direct	1927	Washburn Wire Co.	Phillipsdale, R. I.	W
19	300	315-630	230		8" Merchant Mill	Direct	1919	Donner Steel Co.	Buffalo, N. Y.	GE
20	300	325-650	220	d.c.	Sheet Mill		1919	Aluminum Company of America	New Kensington, Pa.	AC
21	300	345-500	500	d.c.	Tube Rolling Mill	Geared	1912	Pittsburgh Steel Products Co.	Monessen, Pa.	W
22	300	350-450	230	d.c.	Merchant Bar Mill	Geared	1916	Carbon Steel Co.	Pittsburgh, Pa.	W
23	300	350-450	230	d.c.	Lap Welding Mill	Coupled	1923	Gary Tube Co.	Gary, Ind.	AC
24	300	400-800	230		Cold Strip Mill	Geared	1913	Weirton Steel Co.	Weirton, W. Va.	GE
25	300	400-800	230		Cold Strip Mill	Geared	1913	Weirton Steel Co.	Weirton, W. Va.	GE
26	300	400-800	230		Cold Strip Mill	Geared	1913	Weirton Steel Co.	Weirton, W. Va.	GE
27	300	400-800	230		Cold Strip Mill	Geared	1913	Weirton Steel Co.	Weirton, W. Va.	GE
28	300	400-800	230		20" Cold Strip Mill	Geared	1919	Trumbull Steel Co.	Warren, Ohio	GE

DIRECT CURRENT ADJUSTABLE SPEED DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
29	300	400-800	230		20" Cold Strip Mill	Geared	1919	Trumbull Steel Co.	Warren, Ohio	GE
30	300	400-800	230		20" Cold Strip Mill	Geared	1919	Trumbull Steel Co.	Warren, Ohio	GE
31	300	400-800	230	d.c.	20" Cold Strip Mill	Geared	1919	Trumbull Steel Co.	Warren, Ohio	GE
32	300	400-800	230	d.c.	Edging Rolls	Geared	1926	Trumbull Steel Co.	Warren, Ohio	GE
33	300-400	400-800	230	d.c.	14"-4-High Tandem Copper Mill	Geared	1927	Rome Brass & Copper Co.	Rome, N. Y.	GE
34	300	450-750	230	d.c.	Wheel Mill	Geared	1913	Bethlehem Steel Co.	Johnstown, Pa.	AC
35	300	450-750	230	d.c.	Wheel Mill	Geared	1913	Bethlehem Steel Co.	Johnstown, Pa.	AC
36	300	450-1200	650	d.c.	Cold Strip Al. Mill	Geared	1929	U. S. Aluminum Co.	Niagara Falls, N. Y.	GE
37	300	600-1200	600	d.c.	14" Hot Strip Mill	Geared	1929	Superior Steel Co.	Carnegie, Pa.	W
38	300	600-1200	600	d.c.	14" Hot Strip Mill	Geared	1929	Superior Steel Co.	Carnegie, Pa.	W
39	300	1200	230	d.c.	28" Straightener	Geared	1929	Bethlehem Steel Co.	Bethlehem, Pa.	CW
40	320	400-800	230	d.c.	Cold Strip Drive	Geared	1926	International Nickle Co.	Huntington, W. Va.	AC
41	350	200-300	250	d.c.	9" Merchant Mill	Direct	1919	Natl. Farming Machinery, Ltd.	Montmagny, P. Q.	W
42	350	240-360	240	d.c.	10" Merchant Mill	Direct	1911	LaClede Steel Co.	St. Louis, Mo.	GE
43	350	240-480	240	d.c.	10" Merchant Mill	Direct	1923	LaClede Steel Co.	St. Louis, Mo.	GE
44	350	250-325	230	d.c.	9" Merchant Mill	Direct	1921	Wayne Steel Company	Erie, Pa.	W
45	350	275-550	230	d.c.	Tube Reeling Mill	Geared	1928	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
46	350	275-550	230	d.c.	Tube Reeling Mill	Geared	1928	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
47	350	300-425	230	d.c.	8" Rod Mill	Direct	1915	United Alloy Steel Corporation	Canton, Ohio	W
48	350	360-450	230	d.c.	Welding Rolls	Direct	1920	National Tube Company	Lorain, Ohio	GE
49	350	360-450	230	d.c.	Welding Rolls	Direct	1920	National Tube Company	Lorain, Ohio	GE
50	350	400-800	230	d.c.	8" Merchant Mill	Direct	1928	Laclede Steel Co.	Alton, Ill.	GE
51	350	400-700	600	d.c.	28" Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
52	350	400-800	600	d.c.	10" Merchant Mill	Geared	1929	Inland Steel Co.	Ind. Harbor, Ind.	GE
53	350	400-800	600	d.c.	10" Merchant Mill	Geared	1929	Inland Steel Co.	Ind. Harbor, Ind.	GE
54	350	400-800	600	d.c.	10" Merchant Mill	Geared	1929	Inland Steel Co.	Ind. Harbor, Ind.	GE
55	350	400-800	600	d.c.	10" Merchant Mill	Geared	1929	Inland Steel Co.	Ind. Harbor, Ind.	GE
56	350	400-800	600	d.c.	10" Merchant Mill	Geared	1929	Inland Steel Co.	Ind. Harbor, Ind.	GE
57	350	400-800	600	d.c.	10" Merchant Mill	Geared	1929	Inland Steel Co.	Ind. Harbor, Ind.	GE
58	350	400-800	600	d.c.	10" Merchant Mill	Geared	1929	Inland Steel Co.	Ind. Harbor, Ind.	GE
59	350	400-800	600	d.c.	10" Merchant Mill	Geared	1929	Inland Steel Co.	Ind. Harbor, Ind.	GE
60	350	450-600	230	d.c.	Band Mill	Direct	1926	Sharon Steel Hoop Co.	Sharon, Pa.	CW
61	350	500	230	d.c.	16" Cont. Skelp Mill	Geared	1924	Gary Tube Co.	Gary, Ind.	AC
62	350	524-850	230	d.c.	18" Blading Mill	Geared	1924	W. E. & M. Co.	South Phila. Works	W
63	360	300-600	230	d.c.	Rod Mill	Direct	1922	United Alloy Steel Corporation	Canton, Ohio	W
64	360	350-500	230	d.c.	7" Rod Mill	Direct	1915	United Alloy Steel Corporation	Canton, Ohio	W
65	375	430-860	230	d.c.	20" Cold Rolling Mill	Geared	1922	Otis Steel Company	Cleveland, Ohio	W
66	375	430-860	230	d.c.	20" Cold Rolling Mill	Geared	1922	Otis Steel Company	Cleveland, Ohio	W
67	375	430-860	230	d.c.	20" Cold Rolling Mill	Geared	1922	Otis Steel Company	Cleveland, Ohio	W
68	375	430-860	230	d.c.	20" Cold Rolling Mill	Geared	1922	Otis Steel Company	Cleveland, Ohio	W
69	375	430-860	230	d.c.	20" Cold Rolling Mill	Geared	1922	Otis Steel Company	Cleveland, Ohio	W
70	375	430-860	230	d.c.	Cold Roll Mill	Geared	1925	Otis Steel Co.	Cleveland, Ohio	GE
71	375	430-860	230	d.c.	Cold Roll Mill	Geared	1925	Otis Steel Co.	Cleveland, Ohio	GE
72	400	150-300	250	d.c.	Copper Rod Mill	Geared	1929	United Eng. & Constructors for Am. Copper Prod. Div., Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
73	400	180-540	600	d.c.	Merchant Mill	Direct	1928	American Steel & Wire Co.	Cleveland, Ohio	W
74	400	223-669	600	d.c.	Merchant Mill	Direct	1928	American Steel & Wire Co.	Cleveland, Ohio	W
75	400	200-300	230	d.c.	9" Merchant Mill	Direct	1914	United Alloy Steel Corporation	Canton, Ohio	W
76	400	240-721	600	d.c.	9" Merchant Mill	Geared	1926	Illinois Steel Co.	Gary, Ind.	GE
77	400	240-721	600	d.c.	9" Merchant Mill	Geared	1926	Illinois Steel Co.	Gary, Ind.	GE
78	400	240-721	600	d.c.	9" Merchant Mill	Geared	1926	Illinois Steel Co.	Gary, Ind.	GE
79	400	240-721	600	d.c.	9" Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
80	400	250-500	230	d.c.	10" Merchant Mill	Direct	1920	Timken Roller Bearing Co.	Canton, Ohio	GE
81	400	275-500	550	d.c.	12" Hot Strip Mill	Direct	1916	American Steel & Wire Co.	Cleveland, Ohio	GE
82	400	250-750	600	d.c.	Merchant Mill	Direct	1928	American Steel & Wire Co.	Cleveland, Ohio	W
83	400	295-885	600	d.c.	Merchant Mill	Direct	1928	American Steel & Wire Co.	Cleveland, Ohio	W
84	400	300-600	250	d.c.	Copper Rod Mill	Geared	1929	United Eng. & Constructors for Am. Copper Prod. Div., Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
85	400	300-600	250	d.c.	Copper Rod Mill	Geared	1929	United Eng. & Constructors for Am. Copper Prod. Div., Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
86	400	300-600	250	d.c.	Copper Rod Mill	Geared	1929	United Eng. & Constructors for Am. Copper Prod. Div., Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
87	400	350	230	d.c.	Tube Reeling Drive	Geared	1927	National Tube Co.	Lorain, Ohio	AC
88	400	350	230	d.c.	Tube Reeling Drive	Geared	1927	National Tube Co.	Lorain, Ohio	AC
89	400	400-450	220	d.c.	8" Merchant Mill	Direct	1911	Illinois Steel Co.	Milwaukee, Wis.	W
90	400	400-800	230	d.c.	Cold Strip Mill	Geared	1926	Trumbull Steel Co.	Warren, Ohio	GE
91	400	400-800	230	d.c.	Cold Strip Mill	Geared	1927	Trumbull Steel Co.	Warren, Ohio	GE
92	400	400-800	230	d.c.	Cold Strip Mill	Geared	1927	Trumbull Steel Co.	Warren, Ohio	GE
93	400	400-800	230	d.c.	Cold Strip Mill	Geared	1927	Trumbull Steel Co.	Warren, Ohio	GE
94	400	400-800	230	d.c.	Cold Strip Mill	Geared	1927	Central Alloy Steel Co.	Massillon, Ohio	GE
95	400	400-800	230	d.c.	Cold Mill	Geared	1927	American Sheet & Tin Plate Co.	McKeesport, Pa.	GE
96	400	400-800	230	d.c.	Cold Strip Mill	Geared	1929	Crucible Steel Co.	Pittsburgh, Pa.	W
97	400	400-1200	230	d.c.	Cold Roll Mill	Geared	1929	American Sheet & Tinplate Co.	Farrel, Pa.	AC
98	400	420-1050	250	d.c.	12" Hoop Mill	Geared	1928	Carnegie Steel Co.	Youngstown, Ohio	W
99	400	420-1050	250	d.c.	10" Merchant Mill	Geared	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
100	400	450-900	250	d.c.	Copper Rod Mill	Geared	1929	United Eng. & Constructors for Am. Copper Prod. Div., Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
101	400	480	440	25	Merchant Mill	Geared	1927	Bethlehem Steel Co.	Lackawanna, N. Y.	CW
102	400	500-1000	600	d.c.	Strip Mill	Geared	1926	Forged Steel Wheel Co.	Butler, Pa.	AC
103	400	500-1000	600	d.c.	Strip Mill	Geared	1926	Forged Steel Wheel Co.	Butler, Pa.	AC
104	400	500-1000	600	d.c.	Strip Mill	Geared	1926	Forged Steel Wheel Co.	Butler, Pa.	AC
105	400	500-1000	600	d.c.	Strip Mil,	Geared	1926	Forged Steel Wheel Co.	Butler, Pa.	AC
106	400	500-1000	600	d.c.	Cold Sheet Mill	Geared	1929	American Rolling Mills,	Middletown, Ohio	W
107	400	500-1000	600	d.c.	Cold Strip Mill	Geared	1929	American Rolling Mills	Butler, Pa.	W
108	400	500-1000	600	d.c.	Cold Strip Mill	Geared	1929	American Rolling Mills	Butler, Pa.	W
109	400	500-1000	600	d.c.	Cold Strip Mill	Geared	1929	American Rolling Mills	Butler, Pa.	W
110	400	500-1000	600	d.c.	Cold Strip Mill	Geared	1929	American Rolling Mills	Butler, Pa.	W
111	400-200	800-400	230	d.c.	Copper Sheet Mill	Geared	1925	Rome Brass & Copper Co.	Rome, N. Y.	GE
112	450	200-400	230	d.c.	26" x 72" Sheet Zinc Mill	Geared	1924	Illinois Zinc Co.	Peru, Illinois	W
113	450	211-422	600	d.c.	9" Merchant Mill	Geared	1926	Illinois Steel Co.	Gary, Ind.	GE
114	450	211-422	600	d.c.	9" Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
115	450	400-650	230	d.c.	Rod (1 Stand) No. 2	Direct	1913	American Steel & Wire Co.	Worcester, Mass.	W
116	450	450-600	230	d.c.	12" Cold Rolls (2 Tandem Stands Roughing)	Geared	1915	Superior Steel Co.	Carnegie, Pa.	W
117	450	450-600	230	d.c.	12" Cold Rolls (2 Tandem Stands Roughing)	Geared	1915	Superior Steel Co.	Carnegie, Pa.	W
118	450	550-750	230	d.c.	Zinc Strip Mills	Geared	1925	Matthiesen & Hegeler Zinc Co.	LaSalle, Ill.	CW
119	500	130-310	600	d.c.	10" Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
120	500	150-225	250	d.c.	12" Merchant Mill	Direct	1919	Natl. Farming Machinery, Ltd.	Montmagny, P. Q.	W
121	500	150-550	600	d.c.	10" Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
122	500	150-300	600	d.c.	10" Merchant Mill	Direct	1928	Steel Co. of Canada	Hamilton, Ont.	W
123	500	150-450	230	d.c.	Merchant Mill	Direct	1928	Barton Spider Web. Co.	Chicago, Ill.	W

DIRECT CURRENT ADJUSTABLE SPEED DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd By
124	500	155–500	250	d.c.	Tyre Mill	Direct	1923	McConway Torley Co.	Pittsburgh, Pa.	W
125	500	173–432	600	d.c.	10″ Merchant Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
126	500	173–432	600	d.c.	10″ Merchant Mill	Geared	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
127	500	175–350	250	d.c.	12″ Merchant Mill	Direct	1926	Pittsburgh Crucible Steel Co.	Midland, Pa.	GE
128	500	175–350	600	d.c.	12″ Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
129	500	175–350	600	d.c.	12″ Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
130	500	175–350	600	d.c.	12″ Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
131	500	180–360	600	d.c.	14″-12″ Skelp Mill	Geared	1926	Wheeling Steel Corp.	Benwood, W. Va.	GE
132	500	200–400	250	d.c.	10″ Cont. Rolling Mill	Coupled	1925	Republic Iron & Steel Co.	Youngstown, Ohio	AC
133	500	200–400	600	d.c.	10″ Merchant Mill	Direct	1928	Steel Co. of Canada	Hamilton, Ont.	W
134	500	210–525	600	d.c.	16″ Strip Mill	Geared	1928	Weirton Steel Co.	Weirton, W. Va.	GE
135	500	212–495	600	d.c.	10″ Merchant Mill	Geared	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
136	500	212–495	600	d.c.	10″ Merchant Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
137	500	220–400	550	d.c.	Brass Mill	Geared	1913	Scoville Mfg. Co.	Waterbury, Conn.	W
138	500	220–400	550	d.c.	Brass Mill	Geared	1913	Scoville Mfg. Co.	Waterbury, Conn.	W
139	500	220–400	550	d.c.	Brass Mill	Geared	1913	Scoville Mfg. Co.	Waterbury, Conn.	W
140	500	220–400	550	d.c.	Brass Mill	Geared	1913	Scoville Mfg. Co.	Waterbury, Conn.	W
141	500	220–400	550	d.c.	Brass Mill	Geared	1913	Scoville Mfg. Co.	Waterbury, Conn.	W
142	500	250–325	230	d.c.	8″ Hoop Mill	Direct	1909	Atlantic Steel Co.	Atlanta, Ga.	GE
143	500	250–500	230	d.c.	9″ Hoop Mill (Finishing)	Direct	1914	Sharon Steel Hoop Co.	Sharon, Pa.	W
144	500	250–350	600	d.c.	9″ Merchant Mill	Direct	1921	Missouri Rolling Mill Co.	St. Louis, Mo.	W
145	500	250–600	250	d.c.	12″–9″ Mill	Coupled	1925	Bethlehem Steel Co.	Johnstown, Pa.	AC
146	500	250–500	600	d.c.	10″ Merchant Mill	Direct	1928	Steel Co. of Canada	Hamilton, Ont.	W
147	500	250–380	600	d.c.	10″ Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, Ohio	W
148	500	250–580	600	d.c.	10″ Merchant Mill	Geared	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
149	500	250–750	250	d.c.	Cold Strip Mill	Geared	1929	Wheeling Steel Corp.	Steubenville, Ohio	GE
150	500	250–750	250	d.c.	Cold Strip Mill	Geared	1929	Wheeling Steel Corp.	Steubenville, Ohio	GE
151	500	250–750	250	d.c.	Cold Strip Mill	Geared	1929	Wheeling Steel Corp.	Steubenville, Ohio	GE
152	500	250–750	250	d.c.	Cold Strip Mill	Geared	1929	Wheeling Steel Corp.	Steubenville, Ohio	GE
153	500	250–750	250	d.c.	Cold Strip Mill	Geared	1929	Wheeling Steel Corp.	Steubenville, Ohio	GE
154	500	250–750	250	d.c.	Cold Strip Mill	Geared	1929	Wheeling Steel Corp.	Steubenville, Ohio	GE
155	500	258–580	600	d.c.	10″ Merchant Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
156	500	267–800	230	d.c.	Hot Merchant Mill	Geared	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
157	500	267–800	230	d.c.	Hot Merchant Mill	Direct	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
158	500	267–800	230	d.c.	Hot Merchant Mill	Direct	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
159	500	267–800	230	d.c.	Hot Merchant Mill	Direct	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
160	500	267–800	230	d.c.	Hot Merchant Mill	Geared	1926	Bourne Fuller Co.	Cleveland, Ohio	GE
161	500	267–800	230	d.c.	Merchant Mill	Geared	1927	Allegheny Steel Co.	Brackenridge, Pa.	GE
162	500	300–450	230	d.c.	Lap Welding Mill	Coupled		Gary Tube Co.	Gary, Ind.	AC
163	500	300–681	600	d.c.	10″ Merchant Mill	Geared	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
164	500	340–543	600	d.c.	10″ Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, Ohio	W
165	500	400–600	230	d.c.	Hoop Mill	Geared	1920	Atlantic Steel Co.	Atlanta, Ga.	GE
166	500	400–800	230	d.c.	Cold Strip Mill	Geared	1927	Newton Steel Co.	Newton Falls, Ohio	W
167	500	400–800	230	d.c.	Tube Reeling Mill	Geared	1927	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
168	500	400–800	230	d.c.	Tube Reeling Mill	Geared	1927	Jones & Laughlin Steel Co.	Woodlawn, Pa.	GE
169	500	400–800	230	d.c.	14″ Tandem Copper Mill	Geared	1927	Rome Brass & Copper Co.	Rome, N. Y.	GE
170	500	400–800	230	d.c.	14″ Tandem Copper Mill	Geared	1927	Rome Brass & Copper Co.	Rome, N. Y.	GE
171	500	400–800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
172	500	400–800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
173	500	400–800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
174	500	400–800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
175	500	400–800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
176	500	400–800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
177	500	400–800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
178	500	400–800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
179	500	400–800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
180	500	400–800	600	d.c.	Cold Strip Mill	Geared	1927	Weirton Steel Co.	Weirton, W. Va.	AC
181	500	400–600	600	d.c.	8″ Strip Mill	Direct	1928	Superior Steel Corp.	Carnegie, Pa.	W
182	500	400–800	230	d.c.	12″-9″ Merchant Mill	Geared	1928	Timken Roller Bearing Co.	Canton, Ohio	AC
183	500	400–800	230	d.c.	Cold Strip Mill	Geared	1929	Acme Steel Co.	Riversdale, Ill.	GE
184	500	400–800	230	d.c.	Cold Strip Mill	Geared	1929	Acme Steel Co.	Riverdale, Ill.	GE
185	500	400–800	230	d.c.	Cold Strip Mill	Geared	1929	Acme Steel Co.	Riverdale, Ill.	GE
186	500	400–800	230	d.c.	Cold Strip Mill	Geared	1929	Acme Steel Co.	Riverdale, Ill.	GE
187	500	400–900	230	d.c.	Cold Strip Mill	Geared	1929	Cold Metal Process Co.	Youngstown, Ohio	GE
188	500	400–900	230	d.c.	Cold Strip Mill	Geared	1929	Cold Metal Process Co.	Youngstown, Ohio	GE
189	500	400–900	230	d.c.	Cold Strip Mill	Geared	1929	Weirton Steel Co.	Weirton, W. Va.	GE
190	500	400–900	230	d.c.	Cold Strip Mill	Geared	1929	Weirton Steel Co.	Weirton, W. Va.	GE
191	500	450–900	250	d.c.	Copper Rod Mill	Geared	1929	United Eng. & Constructors for Am. Copper Prod. Div., Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
192	500	450–900	250	d.c.	Copper Rod Mill	Geared	1929	United Eng. & Constructors for Am. Copper Prod. Div., Nat. Elec. Prod. Corp.	Bayway, N. J.	GE
193	500	435–722	600	d.c.	10″ Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, Ohio	W
194	500	543–892	600	d.c.	10″ Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, Ohio	W
195	500	667–1000	600	d.c.	10″ Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, Ohio	W
196	550	120–300	250	d.c.	10″ Merchant Mill	Direct	1923	Firth Sterling Steel Co.	McKeesport, Pa.	W
197	550	336–588	600	d.c.	9″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
198	550	420–714	600	d.c.	9″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
199	550	420–714	600	d.c.	9″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
200	600	150–250	575		6″ Hot Strip Mill	Direct	1913	American Steel & Wire Co.	Cleveland, Ohio	GE
201	600	185–470	600	d.c.	10″ Strip Mill	Direct	1926	LacLede Steel Co.	Alton, Ill.	W
202	600	200–300	230	d.c.	9″ Merchant Mill	Direct	1914	United Alloy Steel Corporation	Canton, Ohio	W
203	600	200–300	230	d.c.	9″ (Finishing Train) Mill	Direct	1915	United Alloy Steel Corporation	Canton, Ohio	W
204	600	200–400	250	d.c.	9″ Merchant Mill	Direct	1929	Carpenter Steel Co.	Reading, Pa.	W
205	600	205–515	600	d.c.	Merchant Mill	Geared	1928	American Steel & Wire Co.	Cleveland, Ohio	W
206	600	205–515	600	d.c.	Merchant Mill	Geared	1928	American Steel & Wire Co.	Cleveland, Ohio	W
207	600	227–454	230	d.c.	12″-9″ Merchant Mill	Geared	1928	Timken Roller Bearing Co.	Canton, Ohio	AC
208	600	225–425	550	d.c.	12″ Hot Strip Mill	Direct	1916	American Steel & Wire Co.	Cleveland, Ohio	GE
209	600	270–635	600	d.c.	10″ Strip Mill	Direct	1926	LacLede Steel Co.	Alton, Ill.	W
210	600	350–700	600	d.c.	Wire Rod Mill	Geared	1928	John A. Roebling's Sons	Trenton, N. J.	GE
211	600	350–788	250	d.c.	10″ Merchant Mill	Geared	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
212	600	350–788	250	d.c.	10″ Merchant Mill	Geared	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
213	600	350–788	250	d.c.	10″ Merchant Mill	Geared	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
214	600	360–440	500	d.c.	Aluminum Mill	Geared	1919	U. S. Aluminum Co.	Marysville, Tenn.	W
215	600	360–440	500	d.c.	Aluminum Mill	Geared	1919	U. S. Aluminum Co.	Marysville, Tenn.	W
216	600	360–440	500	d.c.	Aluminum Mill	Geared	1919	U. S. Aluminum Co.	Marysville, Tenn.	W
217	600	400–800	250	d.c.	18″ Merchant Mill	Geared	1926	Pittsburgh Crucible Steel Co.	Midland, Pa.	GE
218	600	400–800	230	d.c.	Cold Strip Mill	Geared	1927	American Rolling Mill Co.	Ashland, Ky.	W
219	600	400–800	230	d.c.	Cold Strip Mill	Geared	1927	American Rolling Mill Co.	Ashland, Ky.	W
220	600	400–800	230	d.c.	Cold Strip Mill	Geared	1927	American Rolling Mill Co.	Ashland, Ky.	W
221	600	400–800	230	d.c.	Cold Strip Mill	Geared	1927	American Rolling Mill Co.	Ashland, Ky.	W
222	600	400–800	230	d.c.	Cold Strip Mill	Geared	1927	American Rolling Mill Co.	Ashland, Ky.	W
223	600	400–900	250	d.c.	12″ Hoop Mill	Geared	1928	Carnegie Steel Co.	Youngstown, Ohio	W
224	600	400–900	250	d.c.	12″ Hoop Mill	Geared	1928	Carnegie Steel Co.	Youngstown, Ohio	W
225	600	400–900	250	d.c.	12″ Hoop Mill	Geared	1928	Carnegie Steel Co.	Youngstown, Ohio	W
226	600	400–1000	600	d.c.	10″ Hot Strip Mill	Geared	1929	Acme Steel Co.	Riverdale, Ill.	W
227	600	425–850	250	d.c.	12″ Merchant Mill	Geared	1929	Carpenter Steel Co.	Reading, Pa.	W

DIRECT CURRENT ADJUSTABLE SPEED DRIVES—Continued

No.		Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
228		600	450–900	600	d.c.	10″ Merchant Mill	Geared	1928	Steel Co. of Canada	Hamilton, Ont.	W
229		600	450–900	600	d.c.	10″ Merchant Mill	Geared	1928	Steel Co. of Canada	Hamilton, Ont.	W
230		600	450–900	600	d.c.	10″ Hot Strip Mill	Geared	1929	Acme Steel Co.	Riverdale, Ill.	W
231		600	450–900	600	d.c.	10″ Hot Strip Mill	Geared	1929	Acme Steel Co.	Riverdale, Ill.	W
232		600	450–900	600	d.c.	10″ Hot Strip Mill	Geared	1929	Acme Steel Co.	Riverdale, Ill.	W
233		600	450–900	600	d.c.	10″ Hot Strip Mill	Geared	1929	Acme Steel Co.	Riverdale, Ill.	W
234		650	225–400	600	d.c.	Piercing Mill	Geared	1925	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
235		650	225–400	600	d.c.	Piercing Mill	Geared	1925	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
236		650	225–400	600	d.c.	Piercing Mill	Geared	1925	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
237		700	130–310	600	d.c.	10″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
238		700	130–310	600	d.c.	10″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
239		700	210–660	600	d.c.	10″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
240		700	210–660	600	d.c.	10″ Merchant Mill	Direct	1926	Illinois Steel Co.	Gary, Ind.	GE
241		700	240–450	250	d.c.	9″ Merchant Mill	Direct	1925	Crucible Steel Co.	Pittsburgh, Pa.	GE
242		700	264–595	600	d.c.	10″ Hot Strip Mill	Direct	1929	Acme Steel Co.	Riverdale, Ill.	W
243		700	270–520	250	d.c.	10″ Merchant Mill	Direct	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
244		700	300–400	230	d.c.	Lap Welding Mill	Coupled	1923	Gary Tube Co.	Gary, Ind.	AC
245		720–900	160–200	220	d.c.	Wheel Mill	Geared	1906	Bethlehem Steel Co.	Johnstown, Pa.	GE
246		720	395–825	600	d.c.	10″ Strip Mill	Direct	1926	LacLede Steel Co.	Alton, Ill.	W
247		720	480–1000	600	d.c.	10″ Strip Mill	Direct	1926	LacLede Steel Co.	Alton, Ill.	W
248		750	120–210	250	d.c.	14″ Finishing Mill	Coupled	1923	Pittsburgh Crucible Steel Co.	Midland, Pa.	AC
249		750	120–210	250	d.c.	14″ Finishing Mill	Coupled	1923	Pittsburgh Crucible Steel Co.	Midland, Pa.	AC
250		750	150–250	600		14″ Merchant Mill	Direct	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
251		750	190–375	245	d.c.	Pontoon Mill	Coupled	1927	M. W. Kellogg Co.	Jersey City, N. J.	CW
252		750	190–375	245	d.c.	Pontoon Mill	Coupled	1927	M. W. Kellogg Co.	Jersey City, N. J.	CW
253		750	200–600	600	d.c.	10″ Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, Ohio	W
254		750	200–600	600	d.c.	Merchant Mill	Geared	1928	American Steel & Wire Co.	Cleveland, Ohio	W
255		750	200–400	250	d.c.	12″ Merchant Mill	Direct	1929	Carpenter Steel Co.	Reading, Pa	W
256		750	225–500	250	d.c.	12″ Hoop Mill	Direct	1928	Carnegie Steel Co.	Youngstown, Ohio	W
257		750	225–500	250	d.c.	12″ Hoop Mill	Direct	1928	Carnegie Steel Co.	Youngstown, Ohio	W
258		750	235–325	230		Piercing Mill	Geared	1914	Pittsburgh Seamless Tube Co.	Beaver Falls, Pa.	GE
259		750	300–600	230	d.c.	Cold Rolling Mill	Geared	1924	International Nickel Co.	Huntington, W. Va.	AC
260		750	300–600	230	d.c.	Bliss Cold Roll Drive	Geared	1926	International Nickle Co.	Huntington, W. Va.	AC
261		750	360–600	250	d.c.	10″ Merchant Mill	Direct	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
262		750–750	360–860	600	d.c.	14″ Continuous Mill	Geared	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
263		750	400–800	600	d.c.	10″ Merchant Mill	Geared	1929	Inland Steel Co.	Ind. Harbor, Ind.	GE
264		750	400–800	600	d.c.	10″ Merchant Mill	Geared	1929	Inland Steel Co.	Ind. Harbor, Ind.	GE
265		750	425–850	250	d.c.	16″ Merchant Mill	Geared	1929	Carpenter Steel Co.	Reading, Pa.	W
266		800	140–510	†600	d.c.	10″ Rod Mill	Direct	1927	American Steel & Wire Co.	Worcester, Mass.	W
267		800	140–510	†600	d.c.	10″ Rod Mill	Direct	1927	American Steel & Wire Co.	Worcester, Mass.	W
268		800	175–350	†600	d.c.	12″ Alloy Bar Mill	Direct	1927	Illinois Steel Co.	S. Chicago, Ill.	GE
269		800	175–350	600	d.c.	12″ Alloy Bar Mill	Direct	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
270		800	175–350	600	d.c.	12″ Alloy Bar Mill	Direct	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
271		800	250–300	500	d.c.	Piercing Mill	Direct	1912	Pittsburgh Steel Products Co.	Monessen, Pa.	W
272		800	200–300	500	d.c	Piercing Mill	Rope	1912	Pittsburgh Steel Products Co.	Monessen, Pa.	W
273		800	200–400	600		14″ Hot Strip Mill	Direct	1920	Trumbull Steel Co.	Warren, Ohio	GE
274		800	200–400	250	d.c.	9″ 7 Stand Mill	Coupled	1926	Crucible Steel Co. of America	Harrison, N. J.	AC
275		800	200–415	600	d.c.	12″ Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	GE
276		800	200–415	600	d.c.	12″ Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	GE
277		800	200–415	600	d.c.	12″ Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	GE
278		800	200–600	500	d.c.	10″ Merchant Rod & Strip Mill	Geared	1927	Ford Motor Co.	Detroit, Mich.	W
279		800	210–315	575		6″ Hot Strip Mill	Direct	1907	American Steel & Wire Co.	Cleveland, Ohio	GE
280		800	220–440	600	d.c.	12″ Alloy Bar Mill	Direct	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
281		800	220–440	600	d.c.	12″ Alloy Bar Mill	Direct	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
282		800	220–440	600	d.c.	12″ Alloy Bar Mill	Direct	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
283		800	231–462	600		14″ Hot Strip Mill	Direct	1920	Trumbull Steel Co.	Warren, Ohio	GE
284		800	240–480	600	d.c.	12″ Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	GE
285		800	240–500	600	d.c.	Rod Mill	Direct	1928	Sheffield Steel Corp.	Kansas City, Mo.	W
286		800	250–500	230	d.c.	14″ and 9″ Hoop Mill	Direct	1914	Sharon Steel Hoop Co.	Sharon, Pa.	W
287		800	256–512	600		14″ Hot Strip Mill	Direct	1920	Trumbull Steel Co.	Warren, Ohio	GE
288		800	250–750	600	d.c.	14″ Hot Strip Mill	Direct	1927	Trumbull Steel Co.	Warren, Ohio	GE
289		800	250–600	600	d.c.	16″–9″ Skelp Mill	Direct	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
290		800	250–600	600	d.c.	16″–9″ Skelp Mill	Geared	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
291		800	265–665	240	d.c.	12″ Strip Mill	Geared	1929	West Leechburg Steel Co.	Leechburg, Pa.	W
292		800	265–665	240	d.c.	12″ Strip Mill	Geared	1929	West Leechburg Steel Co.	Leechburg, Pa.	W
293		800	265–665	240	d.c.	12″ Strip Mill	Geared	1929	West Leechburg Steel Co.	Leechburg, Pa.	W
294		800	265–665	240	d.c.	12″ Strip Mill	Direct	1929	West Leechburg Steel Co.	Leechburg, Pa.	W
295		800	265–665	240	d.c.	12″ Strip Mill	Direct	1929	West Leechburg Steel Co.	Leechburg, Pa.	W
296		800	260–390	575		6″ Hot Strip Mill	Direct	1907	American Steel & Wire Co.	Cleveland, Ohio	GE
297		800	275–550	600		14″ Hot Strip Mill	Direct	1920	Trumbull Steel Co.	Warren, Ohio	GE
298		800	275–550	700		12″ Merchant Mill	Geared	1925	Penn Seaboard Steel Co.	New Castle, Del.	GE
299		800	275–550	700		12″ Merchant Mill	Geared	1925	Penn Seaboard Steel Co.	New Castle, Del.	GE
300		800	275–550	700		9″ Merchant Mill	Direct	1925	Penn Seaboard Steel Co.	New Castle, Del.	GE
301		800	350–600	230	d.c.	Band Mill	Direct	1926	Sharon Steel Hoop Co.	Sharon, Pa.	CW
302		800	350–600	230	d.c.	Band Mill	Direct	1926	Sharon Steel Hoop Co.	Sharon, Pa.	CW
303		800	350–750	600		Cont. Merchant Mill	Direct	1925	Inland Steel Co.	Indiana Harbor, Ind.	GE
304		800	350–700	600	d.c.	20″ Merchant Mill (Breakdown)	Geared	1921	Driver Harris Co.	Harrison, N. J.	W
305		800	350–790	600	d.c.	13″ Skelp Mill	Geared	1928	National Tube Co.	McKeesport, Pa.	GE
306		800	350–790	600	d.c.	13″ Skelp Mill	Geared	1928	National Tube Co.	McKeesport, Pa.	GE
307		800	360–440	500	d.c.	Aluminum Mill	Geared	1919	U. S. Aluminum Co.	Marysville, Tenn	W
308		800	360–440	500	d.c.	Aluminum Mill	Geared	1919	U. S. Aluminum Co.	Marysville, Tenn.	W
309		800	370–400	650	d.c.	Aluminum Mill	Direct	1917	U. S. Aluminum Co.	Niagara Falls, N. Y.	W
310		800	370–400	650	d.c.	Aluminum Mill	Direct	1919	U. S. Aluminum Co.	Niagara Falls, N. Y.	W
311		800	382–908	600	d.c.	10″ Hot Strip Mill	Direct	1929	Acme Steel Co.	Riverdale, Ill.	W
312		800	382–908	600	d.c.	10″ Hot Strip Mill	Direct	1929	Acme Steel Co.	Riverdale, Ill.	W
313		800	400–600	600	d.c.	16″ Merchant Mill	Geared	1921	Missouri Rolling Mill Co.	St. Louis, Mo.	W
314		800	410–720	230	d.c.	16″ Merchant Mill (Rougher)	Geared	1923	Timken Roller Bearing Co.	Canton, Ohio	W
315		800–363	320–706	600		10″ Rod Mill	Geared	1922	Wheeling Steel Corp.	Portsmouth, Ohio	GE
316		800–363	320–706	600		10″ Rod Mill	Geared	1922	Wheeling Steel Corp.	Portsmouth, Ohio	GE
317		800–363	320–706	600		10″ Rod Mill	Geared	1922	Wheeling Steel Corp.	Portsmouth, Ohio	GE
318		800	400–800	600	d.c.	Rod & Merchant Mill	Geared	1928	Atlantic Steel Co.	Atlanta, Ga.	GE
319		800	425–875	250	d.c.	12″ Hoop Mill	Direct	1928	Carnegie Steel Co.	Youngstown, Ohio	W
320		800	425–875	250	d.c.	12″ Hoop Mill	Direct	1928	Carnegie Steel Co.	Youngstown, Ohio	W
321		800	469–750	600	d.c.	Wire Rod Mill	Geared	1928	John A. Roebling's Sons	Trenton, N. J.	GE
322		800	469–750	600	d.c.	Wire Rod Mill	Geared	1928	John A. Roebling's Sons	Trenton, N. J.	GE
323		800	510–870	250	d.c.	10″ Merchant Mill	Direct	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
324		800	535–750	600	d.c.	10″ Wire Rod Mill	Geared	1926	American Steel & Wire Co.	Worcester, Mass.	W
325		800	535–750	600	d.c.	10″ Wire Rod Mill	Geared	1926	American Steel & Wire Co.	Worcester, Mass.	W
326		800	760–1050	250	d.c.	10″ Merchant Mill	Direct	1928	Tennessee Coal, Iron & R. R. Co.	Fairfield, Ala.	CW
327		850	250–500	250	†d.c.	10″ Rod Mill	Direct	1927	Washburn Wire Co.	Phillipsdale, R. I.	W
328		900	150–300	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
329		900	425–640	250	d.c.	12″–10″ Mill	Coupled	1925	Bethlehem Steel Co.	Johnstown, Pa.	AC
330		975–375	650–250	600	d.c.	Rod (Roughing) Mill	Geared	1922	Atlantic Steel Co.	Atlanta, Ga.	W

DIRECT CURRENT ADJUSTABLE SPEED DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd By
331	975–510	865–450	600	d.c.	Rod (Finishing) Mill	Direct & Belted	1922	Atlantic Steel Co.	Atlanta, Ga.	W
332	1000	145–327	600	d.c.	13" Skelp Mill	Direct	1928	National Tube Co.	McKeesport, Pa.	GE
333	1000	175–350	250	d.c.	10" Merchant Mill	Direct	1929	Carpenter Steel Co.	Reading, Pa.	W
334	1000	190–427	600	d.c.	13" Skelp Mill	Direct	1928	National Tube Co.	McKeesport, Pa.	GE
335	1000	200–480	250	d.c.	12"–9" Mill	Geared	1925	Bethlehem Steel Co.	Johnstown, Pa.	AC
336	1000	200–480	250	d.c.	12"–9" Mill	Geared	1925	Bethlehem Steel Co.	Johnstown, Pa.	AC
337	1000–2000	200–400–600	250	d.c.	12"–10" Gautier Mill	Geared	1925	Bethlehem Steel Co.	Johnstown, Pa.	AC
338	1000	200–400	250	d.c.	10" Merchant Mill	Direct	1929	Carpenter Steel Co.	Reading, Pa.	W
339	1000	200–400	600	d.c.	14" Hot Strip Mill	Direct	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
340	1000	210–510	230	d.c.	Bar Mill	Geared	1925	Donner Steel Co.	Buffalo, N. Y.	W
341	1000	200–600	600	d.c.	10" Merchant Mill	Geared	1925	McKinney Steel Co.	Cleveland, Ohio	W
342	1000	250–500	250	d.c.	Strip Mill	Geared	1929	U. S. Aluminum Co.	Arnold, Pa.	W
343	1000	250–500	600	d.c.	14" Hot Strip Mill	Direct	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
344	1000	290–500	600	d.c.	9" Merchant Mill	Geared	1926	Illinois Steel Co.	Gary, Indiana	GE
345	1000	300–400	230	d.c.	Lap Welding Mill			Gary Tube Co.	Gary, Ind.	AC
346	1000	300–600	600	d.c.	14" Hot Strip Mill	Direct	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
347	1000	350–700	600	d.c.	12" Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
348	1000	350–700	600	d.c.	12" Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
349	1000	350–700	600	d.c.	12" Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
350	1000	350–700	600	d.c.	12" Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
351	1000	350–700	600	d.c.	12" Alloy Bar Mill	Geared	1926	Illinois Steel Co.	So. Chicago, Ill.	GE
352	1000	350–450	600	d.c.	28" Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
353	1000	350–700	600	d.c.	14" Hot Strip Mill	Direct	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
354	1000	400–800	230	d.c.	10" Merchant Mill	Geared	1928	Bourne Fuller Co.	Cleveland, Ohio	GE
355	1000	450–900	600	d.c.	10" Merchant Mill	Geared	1928	Steel Co. of Canada	Hamilton, Ont.	W
356	1000	518–800	250	d.c.	20" Merchant Mill	Geared	1919	Natl. Farming Machinery Ltd.	Montmagny, P. Q.	W
357	1000	536–750	600	d.c.	10" Merchant Mill	Geared	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
358	1000	536–750	600	d.c.	10" Merchant Mill	Geared	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
359	1100	214–320	600	d.c.	12" Skelp Mill	Direct	1926	Bethlehem Steel Co.	Sparrows Point, Md.	W
360	1100	240–382	600	d.c.	12" Skelp Mill	Direct	1926	Bethlehem Steel Co.	Sparrows Point, Md.	W
361	1200	125–275	600	d.c.	10" Strip Mill	Direct	1928	American Steel & Wire Co.	Cleveland, Ohio	W
362	1200	140–225	600	d.c.	20" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
363	1200	150–300	230	d.c.	Piercing Mill	Geared	1929	Timken Brg. Co.	Canton, Ohio	GE
364	1200	150–250	230		12" Merchant Mill	Direct	1920	Timken Roller Bearing Co.	Canton, Ohio	GE
365	1200	160–320	250	d.c.	12" Merchant Mill	Direct	1926	Pittsburgh Crucible Steel Co.	Midland, Pa.	GE
366	1200	200–400	230	d.c.	14" Band Mill	Direct	1926	Sharon Steel Hoop Co.	Sharon, Pa.	W
367	1200	200–400	230	d.c.	14" Band Mill	Direct	1926	Sharon Steel Hoop Co.	Sharon, Pa.	W
268	1200	250–500	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
369	1200	250–500	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
370	1200	240–500	600	d.c.	10" Rod Mill	Direct	1929	Sheffield Steel Co.	Kansas City, Mo.	W
371	1200	250–550	600	d.c.	16"–9" Skelp Mill	Direct	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
372	1200	300–600	230	d.c.	12"-9" Merchant Mill	Geared	1928	Timken Roller Bearing Co.	Canton, Ohio	AC
373	1200	300–500	600	d.c.	10" Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	W
374	1200	520–575	230	d.c.	Rod Mill	Direct	1928	Gulf States Steel Co.	Alabama City, Ala.	W
375	1250	103–253	600	d.c.	Strip Mill	Direct	1928	Sharon Steel Hoop Co.	Sharon, Pa.	GE
376	1250	137–326	600	d.c.	Strip Mill	Direct	1928	Sharon Steel Hoop Co.	Sharon, Pa.	GE
377	1250	175–400	230	d.c.	Rod Mill	Direct	1915	United Alloy Steel Corp.	Canton, Ohio	W
378	1250	175–350	600		14" Hot Strip Mill	Geared	1920	Trumbull Steel Co.	Warren, Ohio	GE
379	1250	175–350	600		14" Hot Strip Mill	Geared	1920	Trumbull Steel Co.	Warren, Ohio	GE
380	1250	175–413	600	d.c.	Strip Mill	Direct	1928	Sharon Steel Hoop Co.	Sharon, Pa.	GE
381	1250	200–500	600	d.c.	Strip Mill	Direct	1928	Sharon Steel Hoop Co.	Sharon, Pa.	CE
382	1250	250–580	600	d.c.	Strip Mill	Direct	1928	Sharon Steel Hoop Co.	Sharon, Pa.	GE
383	1250	312–625	600	d.c.	Strip Mill	Direct	1928	Sharon Steel Hoop Co.	Sharon, Pa.	GE
384	1250	300–550	500	d.c.	10" Merchant Mill	Direct	1927	Ford Motor Co..	Detroit, Mich.	W
385	1400–900	40–60–190	600	d.c.	10" Merchant Mill	Geared	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
386	1400	450–550	500	d.c.	12" Spring Mill	Coupled	1926	Ford Motor Co., Fordson Plant	Detroit, Mich.	AC
387	1500	50–80	600		Cont. Merchant Mill	Direct	1925	Inland Steel Co.	Indiana Harbor, Ind.	GE
388	1500	100–125	220	d.c.	Light Rail Mill	Direct	1905	Carnegie Steel Co.	Bessemer, Pa.	W
389	1500	100–125	220	d.c.	Light Rail Mill	Direct	1905	Carnegie Steel Co.	Bessemer, Pa.	W
390	1500	100–150	600		14" Merchant Mill	Direct	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
391	1500	110–300	600	d.c.	14"–18" Merchant Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
392	1500	110–300	600	d.c.	14"–18" Merchant Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
393	1500	125–250	230	d.c.	14" Band Mill	Direct	1914	Sharon Steel Hoop Co.	Sharon, Pa.	W
394	1500	125–250	240	d.c.	Strip Mill	Geared	1922	West Leechburg Steel Co.	Leechburg, Pa.	W
395	1500	125–250	240	d.c.	Strip Mill	Geared	1922	West Leechburg Steel Co.	Leechburg, Pa.	W
396	1500	133–338	600	d.c.	10" Merchant Mill	Direct	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
397	1500	135–337	600	d.c.	10" Merchant Mill	Geared	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
398	1500	140–280	600	d.c.	18"–16" Skelp Mill	Direct	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
399	1500	137–275	600	d.c.	Rod Mill	Direct	1928	Sheffield Steel Corp.	Kansas City, Mo.	W
400	1500	150–300	250	d.c.	18-14" Structural Mill	Direct	1924	Bethlehem Steel Corp.	Johnstown, Pa.	AC
401	1500	150–300	250	d.c.	18-14" Structural Mill	Direct	1924	Bethlehem Steel Corp.	Johnstown, Pa.	AC
402	1500	150–300	600	d.c.	21" Sheet Bar Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
403	1500	150–300	600	d.c.	21" Sheet Bar Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
404	1500	198–100	600	d.c.	10" Strip Mill	Rope & Direct	1926	LacLede Steel Co.	Alton, Ill.	W
405	1500	200–400	600	d.c.	20"–16" Hot Strip Mill	Geared	1925	Acme Steel Goods Co.	Riverdale, Ill.	W
406	1500	200–300	600		10" Merchant Mill	Direct	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
407	1500	200–600	600	d.c.	Rod Mill	Geared	1928	Sheffield Steel Corp.	Kansas City, Mo.	W
408	1500	200–500	600	d.c.	Seamless Tube Mill	Direct	1928	National Tube Co.	Gary, Ind.	AC
409	1500	200–500	600	d.c.	Seamless Tube Mill	Direct	1928	National Tube Co.	Gary, Ind.	AC
410	1500	220–440	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
411	1500	250–565	600	d.c.	13" Skelp Mill	Direct	1928	National Tube Co.	McKeesport, Pa.	GE
412	1500	280–420	600		20" Hot Strip Mill	Geared	1922	Otis Steel Co.	Cleveland, Ohio	GE
413	1500	280–420	600		20" Hot Strip Mill	Geared	1922	Otis Steel Co.	Cleveland, Ohio	GE
414	1500	280–420	600		20" Hot Strip Mill	Geared	1922	Otis Steel Co.	Cleveland, Ohio	GE
415	1500	300–681	600	d.c.	10" Merchant Mill	Direct	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	W
416	1500	315–630	600	d.c.	13" Skelp Mill	Direct	1928	National Tube Co.	McKeesport, Pa.	GE
417	1500	325–450	600	d.c.	10" Strip -Mill	Direct	1928	Superior Steel Corp.	Carnegie, Pa.	W
418	1500	450–550	600		Rod Mills Nos. 16 to 18	Direct	1925	Colorado Fuel & Iron Co.	Minnequa, Colo.	GE
419	1500	470–510	230	d.c.	Rod Mill	Direct	1923	John A. Roebling Sons	New York, N. Y.	W
420	1600	150–300	600	d.c.	14" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
421	1600	200–300	600	d.c.	20" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
422	1600	210–420	525	d.c.	Rod Mill	Geared	1913	Steel Co. of Canada	Hamilton, Ont.	W
423	1600	210–420	525	d.c.	Rod Mill	Geared	1913	Steel Co. of Canada	Hamilton, Ont.	W
424	1650	112.5–270	750	d.c.	Slabbing Mill	Direct	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
425	1700	90–140	600		14" Mill	Direct	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
426	1700	90–205	600		14" Mill	Direct	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
427	1700	250–500	250	d.c.	12"–10" Mill	Geared	1925	Bethlehem Steel Co.	Johnstown, Pa.	AC
428	1750	100–200	500	d.c.	12" Spring Mill	Coupled	1926	Ford Motor Co., Fordson Plant	Detroit, Mich.	AC
429	1750	150–300	230	d.c.	18-14" Structural Mill	Direct	1924	Bethlehem Steel Corp.	Lackawanna, N. Y.	AC
430	1800	115–230	600		20" Hot Strip Mill	Direct	1922	Otis Steel Co.	Cleveland, Ohio	GE
431	1800	115–230	600		20" Hot Strip Mill	Direct	1922	Otis Steel Co.	Cleveland, Ohio	GE
432	1800	115–230	600		20" Hot Strip Mill	Direct	1922	Otis Steel Co.	Cleveland, Ohio	GE
433	1800	125–250	600	d.c.	20"–16" Hot Strip Mill	Direct	1925	Acme Steel Goods Co.	Riverdale, Ill.	W
434	1800	125–250	600	d.c.	20"–16" Hot Strip Mill	Direct	1925	Acme Steel Goods Co.	Riverdale, Ill.	W
435	1800	150–300	250	d.c.	18-14" Structural Mill	Direct	1924	Bethlehem Steel Co.	Lackawanna, N. Y.	AC

DIRECT CURRENT ADJUSTABLE SPEED DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	W Name of Plant	Location	Mfgd. By
436	1800	165–350	240	d.c.	Strip Mill	Direct	1922	West Leechburg Steel Co.	Leechburg, Pa.	W
437	1800	165–350	240	d.c.	Strip Mill	Direct	1922	West Leechburg Steel Co.	Leechburg, Pa	W
438	1800	185–370	600	d.c.	20"–16" Hot Strip Mill	Geared	1925	Acme Steel Goods Co.	Riverdale, Ill.	W
439	1800	185–370	600	d.c.	20"–16" Hot Strip Mill	Direct	1925	Acme Steel Goods Co.	Riverdale, Ill.	W
440	1800	185–370	600	d.c.	20"–16" Hot Strip Mill	Direct	1925	Acme Steel Goods Co.	Riverdale, Ill.	W
441	1800	200–400	600		Cont. Merchant Mill	Geared	1925	Inland Steel Co.	Indiana Harbor, Ind.	GE
442	1500–1800	200–240–500	500-600	d.c.	Tube Mill	Direct	1929	National Tube Co.	Loraine, Ohio	AC
443	1500–1800	200–240–500	500-600	d.c.	Tube Mill	Direct	1929	National Tube Co.	Loraine, Ohio	AC
444	1800	275–550	600	d.c.	12" Skelp Mill	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	W
445	1800	275–550	600	d.c.	12" Skelp Mill	Geared	1926	Bethlehem Steel Co.	Sparrows Point, Md.	W
446	1800	350–640	500	d.c.	18" Rougher Mill	Geared	1926	Pittsburgh Crucible Steel Co.	Midland ,Pa.	AC
447	1800	475–550	550	d.c.	Merchant Mill	Direct	1928	Pittsburgh Steel Co.	Monessen, Pa.	CW
448	1800	550–650	250	d.c.	22" Merchant Mill	Geared	1925	Crucible Steel Co.	Pittsburgh, Pa.	GE
449	1850	575–221	600	d.c.	Rod Mill	Direct & Belted	1922	Atlantic Steel Co.	Atlanta, Ga.	W
450	2000	85–165	600		21" Cont. Sheet Bar and Skelp Mill	Geared	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
451	2000	85–165	600		21" Cont. Sheet Bar and Skelp Mill	Geared	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
452	2000	85–165	600		21" Cont. Sheet Bar and Skelp Mill	Geared	1925	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE
453	900–2000	40–97–190	350–600–850	d.c.	10" Merchant Mill	Direct	1929	Interstate Iron & Steel Co.	Chicago, Ill.	AC
454	2000	134–275	600	d.c.	10" Merchant Mill	Direct	1925	McKinney Steel Co.	Cleveland, Ohio	W
455	2000	137½–275	500	d.c.	10" Merchant-Rod & Strip Mill	Direct	1927	Ford Motor Co.	Detroit, Mich.	W
456	2000	175–400	600	d.c.	28" Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
457	2000	175–400	600	d.c.	28" Strip Mill	Geared	1929	Illinois Steel Co	Gary, Ind.	GE
458	2000	175–400	600	d.c.	28" Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
459	2000	175–400	600	d.c.	28" Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
460	2000	200–400	600	d.c.	Hot Strip Mill	Geared	1926	Columbia Steel Co.	Butler, Pa.	GE
461	2000	200–400	600	d.c.	Hot Strip Mill	Geared	1926	Columbia Steel Co.	Butler, Pa.	GE
462	2000	200–400	600	d.c.	Hot Strip Mill	Geared	1926	Columbia Steel Co.	Butler, Pa.	GE
463	2000	200–400	600	d.c.	Hot Strip Mill	Geared	1926	Columbia Steel Co.	Butler, Pa.	GE
464	2000	200–400	600	d.c.	14"-12" Skelp Mill	Geared	1926	Wheeling Steel Co.	Benwood, W. Va.	GE
465	2000	200–400	600	d.c.	14"-12" Skelp Mill	Geared	1926	Wheeling Steel Co.	Benwood, W. Va.	GE
466	2000	200–400	600	d.c.	14"-12" Skelp Mill	Geared	1926	Wheeling Steel Co.	Benwood, W. Va.	GE
467	2000	200–400	600	d.c.	Strip Sheet Mill	Direct	1926	Weirton Steel Co.	Weirton, W. Va.	GE
468	2000	200–400	600	d.c.	Strip Sheet Mill	Direct	1926	Weirton Steel Co.	Weirton, W. Va.	GE
469	2000	200–350	600	d.c.	14" Strip Mill	Direct	1928	Superior Steel Corp.	Carnegie, Pa.	W
470	2000	230–460	600	d.c.	Merchant Mill	Direct	1925	International Harvester Co.	Chicago, Ill.	W
471	2000	230–460	600	d.c.	Merchant Mill	Direct	1925	International Harvester Co.	Chicago, Ill.	W
472	2000	230–460	600	d.c.	Merchant Mill	Direct	1925	International Harvester Co.	Chicago, Ill.	W
473	2000	230–460	600	d.c.	Sheet Mill	Geared	1926	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
474	2000	230–460	600	d.c.	Structural Mill	Geared	1929	U. S. Aluminum Co.	Massena, N. Y.	W
475	2000	250–465	240	d.c.	Piercing Mill	Geared	1929	Timken Brg. Co.	Canton, Ohio	GE
476	2000	250–500	600	d.c.	14" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
477	2000	250–500	600	d.c.	14" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
478	2000	250–500	600	d.c.	20" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
479	2000	250–500	600	d.c.	20" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
480	2000	250–500	600	d.c.	20" Hot Strip Mill	Greaed	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
481	2000	250–500	600	d.c.	20" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
482	2000	250–500	600	d.c.	20" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
483	2000	250–500	600	d.c.	20" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
484	2000	250–500	600	d.c.	21" Bar & Billet Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
485	2000	250–500	600	d.c.	21" Bar & Billet Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
486	2000	230–460	600	d.c.	10" Rod Mill	Geared	1927	American Steel & Wire Co.	Worcester, Mass.	W
487	2000–1700	210–680	600		14" Mill	Direct	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
488	2000	260–800	600		14" Mill	Direct	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
489	2000	250–465	240	d.c.	22" Bar Mill	Geared	1928	Timken Roller Bearing Co.	Canton, Ohio	GE
490	2000	275–550	600	d.c.	10" Skelp Mill	Geared	1928	Youngstown Sheet & Tube Co.	Youngstown, Ohio	GE
491	2000	275–550	600	d.c.	18"–16" Skelp Mill	Geared	1929	A. M. Byers Co	Pittsburgh, Pa.	GE
492	2000	300–500	600	d.c.	Bar Plate Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
493	2000	300–500	600	d.c.	Bar Plate Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio.	W
494	2000	300–500	600	d.c.	Bar Plate Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
495	2000	315–500	600	d.c.	10" Merchant Mill	Geared	1926	Illinois Steel Co.	Gary, Ind.	GE
496	2100	150–310	600		14" Mill	Direct	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
497	2200	350–500	600	d.c.	20" Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
498	2100–1600	150–460	600		14" Mill	Direct	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
499	2500	55	650	d.c.	24"–18" Billet Mill	Direct	1929	Youngstown Sheet & Tube Co.	Ind. Harbor, Ind.	GE
500	2500	100–300	650	d.c.	40" x 80" Rev. Slab. Mill	Geared	1929	Bethlehem Steel Co.	Sparrows Point, Md.	GE
501	2500	160–320	600	d.c.	Continuous Sheet Mill	Geared	1926	American Sheet & Tinplate Co.	Gary, Ind.	W
502	2500	160–320	600	d.c.	Continuous Sheet Mill	Geared	1926	American Sheet & Tinplate Co.	Gary Ind.	W
503	2500	160–320	600	d.c.	Continuous Sheet Mill	Geared	1926	American Sheet & Tinplate Co.	Gary, Ind.	W
504	2500	160–320	600	d.c.	Continuous Sheet Mill	Geared	1926	American Sheet & Tinplate Co.	Gary, Ind.	W
505	2500	160–320	600	d.c.	Continuous Sheet Mill	Geared	1926	American Sheet & Tinplate Co.	Gary, Ind.	W
506	2500	160–320	600	d.c.	Continuous Sheet Mill	Geared	1926	American Sheet & Tinplate Co.	Gary, Ind.	W
507	2500	175–350	600	d.c.	28" Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
508	2500	175–350	600	d.c.	28" Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
509	2500	175–350	600	d.c.	28" Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE
510	2500	180–450	600	d.c.	Wire Rod Mill	Geared	1928	John A. Roebling Sons	Trenton, N. J.	GE
511	2500	200–400	600	d.c.	Strip Sheet Mill	Direct	1926	Weirton Steel Co.	Weirton, W. Va.	GE
512	2500	200–400	600	d.c.	Strip Sheet Mill	Direct	1926	Weirton Steel Co.	Weirton, W. Va.	GE
513	2500	200–400	600	d.c.	Strip Sheet Mill	Direct	1926	Weirton Steel Co.	Weirton, W. Va.	GE
514	2300	200–400	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
515	2500	200–400	600	d.c.	21" Sheet Bar Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
516	2500	200–400	600	d.c.	21" Sheet Bar Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
517	2500	200–400	600	d.c.	21" Sheet Bar Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
518	2500	200–400	600	d.c.	21" Sheet Bar Mill	Geared	1929	Bethlehem Steel Co.	Lackawanna, N. Y.	GE
519	2500	300	650	d.c.	24"–18" Billet Mill	Direct	1929	Youngstown Sheet & Tube Co.	Ind. Harbor, Ind.	GE
520	2600	320–275	600	d.c.	26" & 21" Cont. Mill	Direct	1926	Bethlehem Steel Co.	Sparrows Point, Md.	GE
521	2870–1435	200–400	600		10" Rod Mill	Geared	1922	Wheeling Steel Corp.	Portsmouth, Ohio	GE
522	3000	40–100	600	d.c.	Piercing Mill	Direct	1925	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
523	3000	125–200	600	d.c.	Piercing Mill	Direct	1925	Youngstown Sheet & Tube Co.	Youngstown, Ohio	W
524	3000	150–300	250	d.c.	18-14" Structural Mill	Direct	1924	Bethlehem Steel Corp.	Johnstown, Pa.	AC
525	3000	150–300	250	d.c.	18-14" Structural Mill	Direct	1924	Bethlehem Steel Corp.	Johnstown, Pa.	AC
526	3000	180–370	600	d.c.	10" Wire Rod Mill	Geared	1926	American Steel & Wire Co.	Worcester, Mass.	W
527	3000	180–360	600	d.c.	Hot Strip Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
528	3000	170–360	600	d.c.	Hot Strip Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
529	3000	180–360	600	d.c.	Hot Strip Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
530	3000	180–360	600	d.c.	Hot Strip Mill	Geared	1927	American Rolling Mill Co.	Middletown, Ohio	W
531	3000	200–360	600		14" Mill	Direct	1924	Jones & Laughlin Steel Corp.	Woodlawn, Pa.	GE
532	3000	200–400	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
533	3000	200–400	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
534	3000	200–400	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
535	3000	200–400	600	d.c.	Wide Strip Mill	Geared	1928	Wheeling Steel Corp.	Steubenville, Ohio	GE
536	3000	200–300	600	d.c.	28" Strip Mill	Geared	1929	Illinois Steel Co.	Gary, Ind.	GE

DIRECT CURRENT ADJUSTABLE SPEED DRIVES—Continued

No.	Horse Power	R.P.M.	Voltage	Cycle	Type and Size of Mill	Method of Drive	Date of Purchase	Name of Plant	Location	Mfgd. By
537	3000	200–400	600	d.c.	60″ Wide Strip Mill	Geared	1929	Wheeling Steel Corp.	Steubenville, Ohio	GE
538	3000	200–400	600	d.c.	18″–16″ Skelp Mill	Geared	1929	A. M. Byers Co.	Pittsburgh, Pa.	GE
539	3000	300–450	600	d.c.	20″ Hot Strip Mill	Geared	1929	Great Lakes Steel Co.	Detroit, Mich.	GE
540	3000	325–485	600	d.c.	24″ Structural Mill	Geared	1923	Phoenix Iron Co.	Phoenixville, Pa.	W
541	3200	50–120	700	d.c.	28″ Structural Mill	Direct	1915	Inland Steel Co.	Indiana Harbor, Ind.	W
542	3500	150–300	240	l.c.	18-14″ Structural Mill	Direct	1924	Bethlehem Steel Corp.	Lackawanna, N. Y.	AC
543	3600	150–300	250	d.c.	18-14″ Structural Mill	Direct	1924	Bethlehem Steel Co.	Lackawanna, N. Y.	AC
544	4000	250–465	240	l.c.	Piercing Mill	Geared	1928	Timken Roller Bearing Co.	Canton, Ohio	GE
545	4000	300–400	600	l.c.	60″ Wide Strip Mill	Geared	1929	Wheeling Steel Corp.	Steubenville, Ohio	GE
546	4500	67.5–110	500		14″ Merchant Mill	Direct	1923	Ford Motor Co.	Detroit, Mich	GE
547	4500	120–255	750	d.c.	Universal Skelp Mill	Coupled	1925	Gary Tube Co.	Gary, Ind.	AC
548	4500	150–450	600	d.c.	Strip Mill	Geared	1928	Sharon Steel Hoop Co.	Sharon, Pa.	GE
549	5600	60–180	600	d.c.	14″–18″ Merchant Mill	Geared	1929	Youngstown Sheet & Tube Co.	Indiana Harbor, Ind.	GE

J. J. BOOTH

W. S. HALL

W. JACKSON

PERSONNEL CHANGES

Mr. W. Jackson, an active member of the Association of Iron and Steel Electrical Engineers for the past eighteen years, has been made Electrical Superintendent of the Homestead Works, Carnegie Steel Company at Munhall, Pa., succeeding Mr. Chas. A. Menk, who has retired from active service, Mr. Jackson started with this Company as an employee in the Electrical Departmenti under Mr. A. C. Dinkey, who was, at that time, Electrical Superintendent at Homestead Steel Works.

Mr. R. J. Harry, also a member of the A. I. & S. E. E., has been appointed Ass't. Sup't of the Electrical Department succeeding Mr. Jackson.

Mr. Roy Barefoot, a member of the A. I. & S. E. E., has been made Ass't. to the Electrical Superintendent at Homestead. Mr. Barefoot was formerly located at the Carrie Furnace Plant of the Carnegie Steel Co.

Mr. H. G. Gibson, an active member of the A. I. & S. E. E., formerly Master Mechanic of the McKeesport Tin Plate Co., has been appointed Chief Engineer of this Company. Mr. Gibson will have charge of both the Electrical and Mechanical Departments of this plant.

Mr. A. Patrick, who was Ass't. Master Mechanic has been made Master Mechanic.

Mr. W. H. Craighead, who was Power Engineer, has been made Ass't. Master Mechanic.

Mr. J. J. Booth, formerly Ass't. Sup't. of the Electrical Department, Gary Plant National Tube Co., has been made Superintendent of this department, succeeding Mr. E. L. Upp who was transferred to the National Department, with offices at Christy Park, McKeesport, Pa. Mr. Booth is an active member of the A. I. & S. E. E., representing the Chicago District on our Board of Directors.

Mr. Warren S. Hall, formerly Electrical Engineer of the Illinois Steel Co., at South Chicago, Ill., has been appointed Ass't. Chief Engineer of this Plant having charge of the new construction work in connection with the rolling mills being built at this Plant. Mr. Hall will also be in charge of the Mechanical, Electrical and Transportation Departments of this Plant. Mr. Hall is a Past President of the A. I. & S. E. E., and has contributed many valuable papers to the Association, and is an active participant in all of the affairs of the A. I. & S. E. E.

Mr. Edwin L. Upp, formerly with the Gary Tube Co., as Electrical Superintendent has been transferred to the National Department with offices at Christy Park Works, McKeesport, Pa. Mr. Upp will have charge of the Electrical Departments.

A. L. REICHERT
Chairman

Cleveland District Section Executive Officers for 1929-1930

MEETINGS

Friday, January 24, 1930
Thursday, February 27, 1930
Friday, March 28, 1930
Friday, April 25, 1930

I. N. TULL
Executive Committee

S. L. HENDERSON
Executive Committee

W. W. ADAMS
Chairman Reception Committee

J. E. WOOD
Secretary

L. A. TERRY
Executive Committee

High Spots in Iron and Steel Plant Expansions Year 1929

By Product Coke Ovens Constructed, 310; Building, 546; Blast Furnaces Dismantled, 19; Being Remodeled, 8; Open Hearth Furnaces Constructed, 14; Building, 42.

Rolling Mills Built, 97; Building, 104

Size	Type	No. Built	Size	Type	No. Built
6″	Cold Strip	2	18″	4-High Cold Strip	4
8″	Cold Strip	2	20″	4-High Cold Strip	2
9″	Rod Mill	1	20″	Skelp	1
10″	Hoop	1	21″	Billet Sheet Bar	1
10″	Hot Strip	1	24″	Billet	2
10″	Cold Strip	1	24″	Bar	1
10″	Merchant	4	26″	Cold Sheet	48
10″	Bar	2	26″	Hot Strip	2
12″	Roughing	5	28″	Cold Tin	5
12″	Merchant	4	28″	Hot Tin	8
12″	Cold Strip	6	28″	Hot Strip	1
12″	4-High Strip	1	28″	Hot Sheet	9
12″	Bar	1	29″	Hot Sheet	8
12″	Hoop	1	30″	Hot Sheet	25
12″	Hot Strip	1	32″	Bar Mill	1
14″	Hot Strip	1	32″	Universal	1
14″	Merchant	2	36″	Blooming	1
14″	Edging	1	40″	Blooming	3
16″	Cold Strip	1	40″	Universal	1
16″	4-High Hot Strip	1	46″	Universal	1
16″	4-High Cold Strip	1	48″	Cold Strip	6
16″	Skelp	1	48″	4-High Cold Strip	3
18″	Blooming	1	52″	Structural	1
18″	Billet	1	54″	Blooming	1
18″	Cold Strip	2	84″	4-High Plate	1
18″	Cold Strip	2			

Classification of Miscellaneous Types of Mills

	No. Built		No. Built
4-High Hot Strip	1	Billet & Sheet Bar	1
Jobbing Sheet	1	Seamless	2
Flattening	1	4-High Skelp Mill	1
Tube Expander	1	Hot Strip	2
Edging Mill	2	Cold Strip	1
Tube Forming	1	4-High Cold Sheet	1
Continuous Billet	1	Merchant	1

1929 Production Figures

STEEL INGOT PRODUCTION ..... 56,100,000 tons

PIG IRON PRODUCED ..... 38,000,000 tons

PEAK OF BLAST FURNACE PRODUCTION MONTH OF MAY, 1929

PRODUCTION OF BITUMINOUS COAL approximately 510,000,000 tons

DISTRIBUTION OF STEEL PRODUCTION—1929

Tin Plate	5%
Strip	6%
Rails	7%
Wire	7%
Plates	11%
Pipe	11%
Shapes	11½%
Sheets	15%
Bars	19%
Miscellaneous	7½%
Total	100%